THE ECONOMIC IMPACT OF DEFENSE MARKETING

STUART THOMPSON CLARK

69

THE ECONOMIC IMPACT OF DEFENSE MARKETING

by

Stuart Thompson Clark
Major, U.S. Marine Corps
Bachelor of Arts in Commerce
San Diego State College
January 26, 1951

A thesis submitted to the Faculty of the
School of Government, Business and
International Affairs of the George Washington
University in partial satisfaction of
the requirements for the degree of
Master of Business Administration

June 5, 1963

Thesis directed by
Arlin Rex Johnson, Ph. D.,
Professor of Business Administration

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

INTRODUCTION

The primary purpose of this paper is to develop the economic, social, and political concepts involved in marketing to the defense establishment. The term defense marketing involves the flow of goods and services from industry to the defense establishment. The term defense establishment is used herein to include the Defense Department and all military departments which are a part of the official Defense Department organization.

> The roles of government and business in the modern day are completely inseparable ... There must be a close relationship--a spirit of cooperation and coordination permeating the entire spectrum.
>
> Fred Korth

The Secretary of the Navy thus quite appropriately stated a basic premise upon which this paper is developed. Defense marketing today must operate within this framework if the necessary total resources of our country are to be successfully utilized in the preservation of our national security.

The interface problem of industry and defense is developed in this study with the belief that in our American free enterprise system only a profit motivated defense industrial system can be fostered by our Government to produce the maximum for the taxpayers' dollar. This paper explores the extent to which this is being accomplished, and what the future holds.

Today, both industry and the defense establishment are operating in the environment of the management sciences. Management is learning how to employ to its advantage the tools and concepts of this age. This has involved the successful employment of operations research and other methods of mathematical research, information processing by computers, and simulation of management high order decision making. More progress in advanced technology will follow in the future. Is the Defense Department keeping pace in the use of these concepts in

its defense marketing systems? This question is explored at some length and an answer developed. Industry and the free enterprise system together with defense management and the tools of the scientific age should be joined together in a coordinated whole.

Chapter I commences by developing the importance of the defense market today, and in the future, both to industry and the country.

When the definitions and concepts of marketing are analyzed, it is found that there are two primary divisions of defense marketing. These can be visualized as marketing to the defense establishment, carried on by various private industries, and those marketing activities conducted internally by the defense establishment. The primary emphasis of this paper covers the aspects of marketing to the defense establishment as carried out by private industry. A brief discussion of the internal aspects is covered in Chapter II. Chapter II also sets the stage for today's defense marketing environment, covering the concepts of marketing and its relationship to defense. This chapter then explains the defense marketing organization and the relationships of defense and industrial marketing functions.

Defense marketing is a highly specialized phase of the broad marketing area. It has many unique functions of its own, calling for highly trained and motivated people. It does, however, have certain characteristics closely associated with industrial and consumer marketing which is developed in this study.

Chapter III covers in general terms some of the major problems, issues, and probable solutions which will be forthcoming in the next few years in the area of defense marketing.

The economic, social, political and defense implications of procurement policy in the defense establishment contribute an extensive and important phase

of this study. This subject, while not normally found included as a phase of marketing, is a major consideration and problem area for all industries trying to market to the defense establishment. Chapter IV contains a discussion of this subject in its context with defense marketing today and in the future. This Chapter was not developed as a survey of the total procurement process, but stresses the major separation of philosophy between industry and defense.

The long-range trends in defense marketing are discussed in Chapter V. Systems which are relatively new in defense such as the Programming System, Program Evaluation and Review Technique, Line of Balance, Integrated Data Flow Systems, and the current procurement systems, together with extensive use of automatic data processing equipment is brought together in an integrated, centrally managed system by extensive use of management sciences. The increasing use of these techniques are quite evident in all levels of the Pentagon today, but are still in their developmental infancy.

The least used of the new management techniques is the management sciences of operations research or decision making logic involving extensive use of mathematical analysis and actual simulation of high order human thinking by computer programs. It is in this vast virtually untaped resource that defense marketing problems of today will eventually be resolved.

Chapter VI contains a summary of the highlights of this dynamic market and indicates why this writer feels that every military manager today must know and understand the defense market in achieving the ultimate success of his military department's mission--the national defense.

Defense marketing, while a highly technical, specialized, and complex area in which to operate, is just another market place for goods and services, but like other markets, it has its own peculiarities in ways of doing its business. These peculiarities make it the most technical, highly specialized,

and probably in the minds of private businessmen the most difficult, backward, unpredictable and "red tape" market of all. For many it is an unprofitable market; for a few it is extremely profitable.

CHAPTER I

THE IMPORTANCE OF THE DEFENSE MARKET

Why is the defense market important?--The importance of the defense market to industry in our economy probably does not require a lengthy discussion since most people are vitally aware of it and worried about the large sums expended each year on missiles, airplanes, and military equipment and services of various types. This chapter, however, will place a few specific price tags on some of the current costs of defense and make projections indicating what may be in store for the taxpayers of the future. It also outlines the various areas in which most of the defense marketing occurs in order to show where industry will probably be placing its future marketing emphasis.

It is easy to lose sight of the real significance of the defense market in dollar viewing only. The prime importance of the defense market is its position in industry as a partner in the national defense of our country. This position is well recognized by many of our government and industrial leaders. Both Presidents Eisenhower and Kennedy have discussed this area of partnership many times. Positive action has also been taken to develop required relationships between industry and government. Many government agencies are now in operation in the Defense Department in support of better government and business relationships, and a few of these, pertinent to defense, will be covered in later chapters.

The defense market in 1951, consisted of an annual expenditure of approximately $20 billion and has now grown to a planned $48.3 billion in 1963. The total national defense planned expenditure in 1963, will be $52.7 billion or more. This is the biggest single portion of the $92.5 billion total budget

expenditure for 1963. Defense is approximately 8% of the total output of the national economy (Gross National Product), and represents over 50% of the total federal budget. Table 1 indicates the federal budget for military functions for fiscal years since 1951.

The aggregate defense establishment business placed with defense industry currently amounts to some $23 billion per year, of which roughly 15% represents purchases of "soft goods", (such as petroleum products, food, clothing, and other subsistence items), and the remaining 85% represents purchases of "hard goods", (including construction, military weapons, missiles, aircraft, and related development work).[1]

The defense market is important in a number of other ways as outlined below:

1. It is the market in which one-fourth of all capital goods produced by industry are sold.
2. It is the market in which one-half of all industrial research and development effort is sold. The defense department finances about 50% of all research and development work performed by private industry. It is therefore a market of great technological progress.
3. It is a one-customer market of tremendous magnitude. A single order for airplanes may amount to $300 million. This equals an order for four million vacuum cleaners.[2]

The future of the defense market.--It is common practice for current writers to enter the field of prediction and forecasting of future defense expenditures. Most seem to fail completely in the effort. The problem lies in the complexity of the problems involved in evaluating the many factors that can

---

[1] Lee K. Alexander, "The Current and Near-Term Outlook in the Defense Market," "Defense Marketing in the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960), p. 28.

[2] Murray L. Weidenbaum, "The Changing Structure of the U.S. Defense Market," Defense Marketing in the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960), p. 7.

TABLE 1

FEDERAL BUDGET EXPENDITURES FOR MILITARY FUNCTIONS

Fiscal Year	DOD Expenditures For Military Functions[a]	Total Federal Budget Expenditures[a]	Gross National Product ($ billions)[b]	DOD Expenditures As % of GNP	DOD Expenditures as % of Federal Expenditures
1951	$19.8	$44.	$329.0	6.0	44.9
1956	$35.8	$66.2	$419.2	8.5	54.0
1960	$41.2	$76.5	$504.4	8.2	52.7
1961	$43.2	$81.5	$521.3	8.3	53.2
1962 EST	$46.9	$89.1			52.6
1963 EST	$48.3	$92.5			52.2

[a] Source: Bureau of the Budget, The Budget of the United States Government for Fiscal Year Ended June 30, 1963 (Washington: U.S. Government Printing Office), pp. 103-112.

[b] Source: Joint Economic Committee and Council of Economic Advisors, Economic Indicators: May 1962 (Washington: U.S. Government Printing Office), p. 1.

develop to influence defense spending. A situation such as exists today in Cuba can send the budget up into increased billions as well as could Berlin tomorrow. Another problem exists in the pure magnitude of the spending. Most analysts just cannot believe the speed with which modern technology and defense requirements can increase expenditures. One writer indicated an increase of from $41 billion in 1960 to $49 billion by 1970, a figure already reached and sure to be passed by maybe another billion this fiscal year. And so it goes, up and up.[3]

The total economy is on the upswing. The population is growing, the standard of living is increasing, research and development expenditures are reaching an all time high. The gross national product continues to rise at about a 3% plus per year. Some people keep hoping for 5%, which could bring a $700 billion gross national product by 1970, and a $56-$60 billion national defense expenditure. While this is only projected, based on current spending rates, it is not impossible. It is also recognized that spending will increase further if the country should engage in an actual "hot war", which is most possible. Of course, there is also the possibility of a disarmament agreement, but this is best classed in the area of fond hopes and wishful dreaming, and probably the most dangerous step we could take in an age where a nation's leader prefers the lie to the truth.

The volume of defense spending in various categories is indicated in Table 2. Procurement, consisting primarily of missiles and aircraft, has continued to increase over all other areas. The research development test and evaluation expenditures have probably shown the greatest relative increase, and indications are that they will continue to expand while actual procurement

---

[3] _Ibid_., p. 9.

may become less. Rapid technological advance leads to the research and development of many items, only a few of which actually enter the stage of procurement. There is, therefore, an increasing research and development effort, and a decline in quantity production.

Within the major category of procurement expenditures, as indicated on Table 3, approximately 42% are for aircraft and 30% are for missiles, with 8% more devoted to electronics. The remaining 20% are devoted to ships, trucks, artillery, rifles, and other traditional weapons and equipment. This chart again depicts the increasing emphasis on missiles and electronics and a reduced emphasis on aircraft and traditional weapons and equipment.

The current administration has since 1962, indicated a desire to emphasize a greater effort toward a conventional war capability for limited war engagements, and not just a nuclear capability.[4] However, it is doubted that this will materially change the current trends in expenditures over the long term picture. It appears that the new emphasis will only increase overall spending; and missiles, and electronics will continue to increase in a greater proportion.

Summary.--The nature of the defense market is vitally important to industry. No specific predictions can be made accurately to reflect specific money expenditures in a given year. The trends in emphasis should be important to industry to reflect the shifts in major procurement. An analysis of the defense market should provide important background information for management decisions on product lines, research and development, sales efforts, and investment programs. It should be quickly recognized that a detailed study of the defense market and its expenditure trends is essential to any industry planning to enter the market.[5]

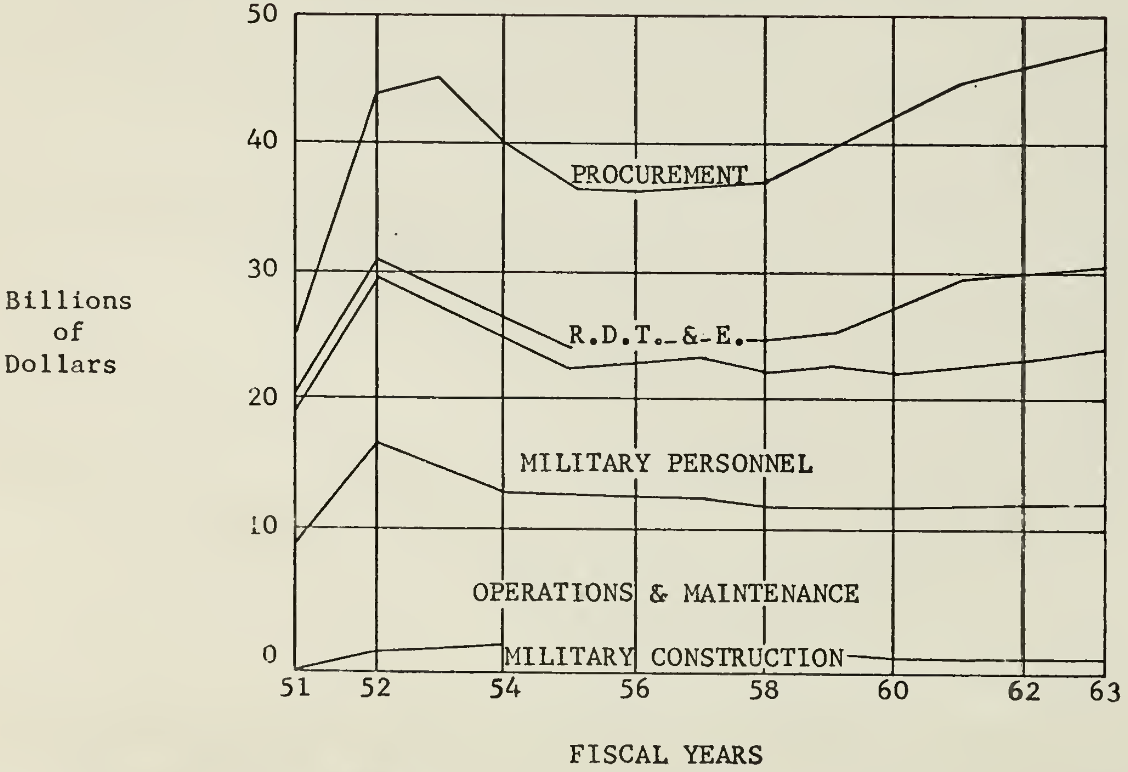
---

[4] Charles J. V. Murphy, "Education of a Defense Secretary," Fortune, May 1962, pp. 102 ff.

[5] Weidenbaum, loc. cit., p. 22.

TABLE 2

MILITARY EXPENDITURES BY CATEGORY[a]
(1961 - 1963)
$ Billions



	60 ACT	63 EST
PROCUREMENT	$13	$15.3
R.D.T. & E.	4.7	6.7
MILITARY PERSONNEL	11.7	13.4
OPERATIONS & MAINTENANCE	10	11.5
CONSTRUCTION	1.6	1.2

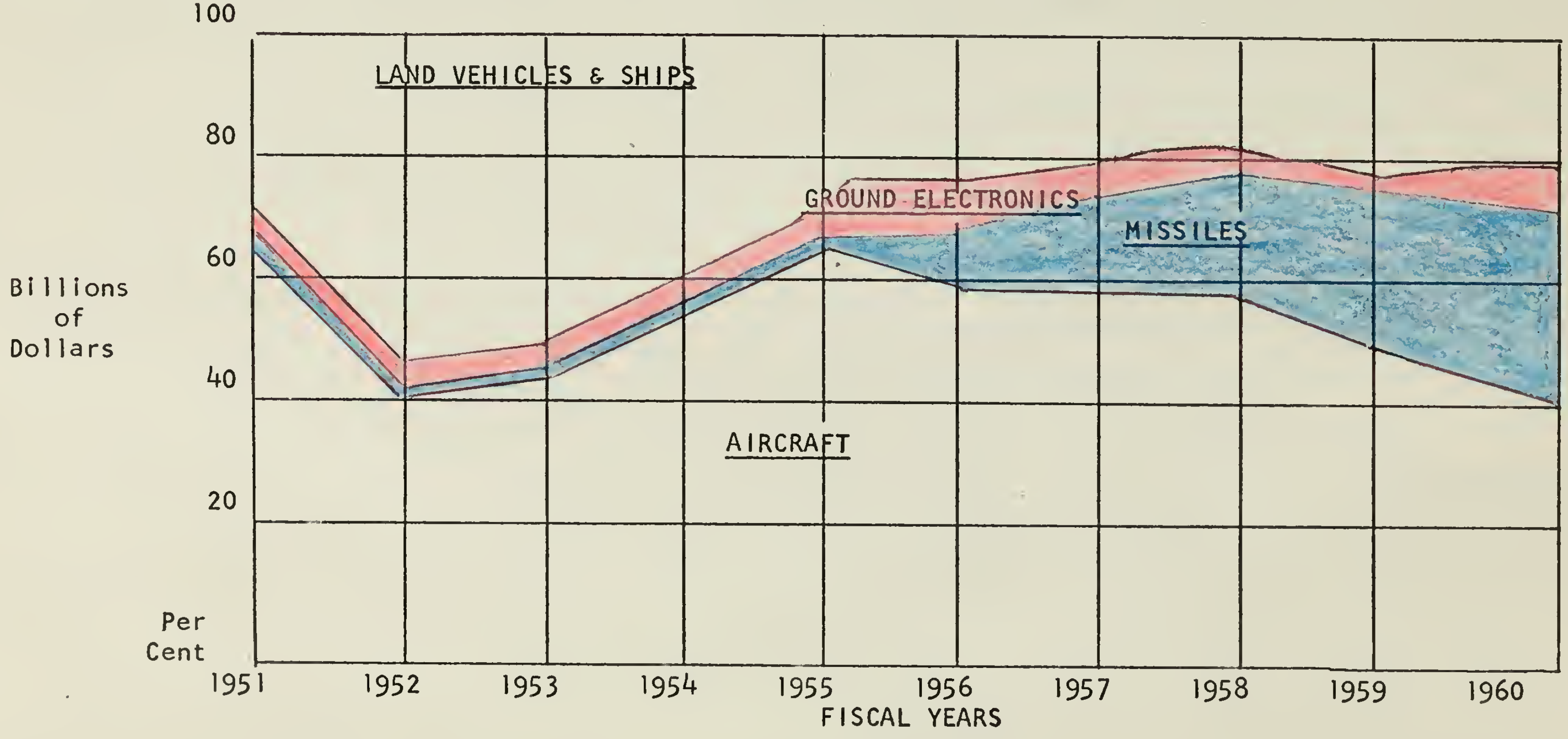
---

[a] Source: Bureau of the Budget, The Budget of United States Government, Fiscal Year 1963, (Washington, D.C.: U.S. Government Printing Office, 1962), pp. 103-112.

Murray L. Weidenbaum, "The Changing Structure of the U.S. Defense Market, "Defense Marketing in the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960,)p. 11.

TABLE 3

MILITARY PROCUREMENT EXPENDITURES BY TYPE[a]



---

[a] Source: Murray L. Weidenbaum, "The Changing Structure of the U.S. Defense Market," Defense Marketing in the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960) p. 12.

[illegible]

[illegible]

[illegible]

CHAPTER II

THE DEFENSE MARKETING ENVIRONMENT

This chapter will discuss the various current marketing definitions and concepts in an effort to place them in the environment of defense marketing. The defense marketing organization will be covered in relation to certain organizational requirements peculiar to the defense type of business. Finally, the key functional areas of particular importance to defense marketing will also be discussed and compared to their counterpart industrial and consumer marketing functions.

In our economy today there are three basic processes in our industrial operations: (1) production--the creation of goods and services, (2) financial and related controller functions--primarily of a staff nature, and (3) marketing-- the activities by which goods and services flow from the producer to the ultimate consumer.[1]

The marketing definition.--Marketing has been defined in many ways by various authors. Some definitions, like that which states that marketing is the activities by which goods and services flow from the producer to the ultimate consumer, tend to be a little too brief or restrictive for today. Like most other processes of our industrial economy, marketing activities are growing more complex and integrated into all phases of the business. Marketing is assuming a position of greater importance and is reflected in considerations throughout the industrial organization. Still the importance of one process over another is not as important a consideration in achieving optimum business operation as the integration and interrelation of all processes.

---

[1] Myron S. Heidingsfield and Albert B. Blakenship, Marketing (New York: Barnes and Noble, Inc., 1959), p. 1.

The marketing definition, therefore, should be broader. It involves changes in custody or responsibility for, and authority over goods, to the end that goods produced by many agencies are made available for the convenience and satisfaction of different users.[2] Marketing includes the movement of raw materials to manufacturing stages, and from factory through wholesale warehouses, and retail stores to consumers.[3] Marketing defined in this manner is not limited to points where production ends and consumption occurs. Rather, it becomes an element which penetrates the entire economy.

These definitions still do not really reflect marketing as it should be viewed today. In order to place marketing in a proper prospective and better reflect its relationship in the defense marketing environment, it will now be considered in the marketing management concept.

The marketing concept.--Marketing functions today have been a transition from emphasis on selling what a company had in its product line to the production of goods and services that are wanted by the customers who make up the demand side of the market.[4]

Peter F. Drucker, in writing on the marketing management concept, gives two meanings:

> First, it defines a specific kind of work and performance needed in the business enterprise: The systematic, planned, and organized efforts needed to find, develop, and service the markets for the company's products and to identify and specify the products needed for the company's markets. This is the sense in which we speak of the "management of marketing", the "marketing function" in a business, and of people engaged in "marketing work". It is the marketing man's definition of marketing.

---

[2] E. D. McGarry, "Some Functions of Marketing Reconsidered, "Theory in Marketing, ed. Reavis Cox and Wroe Alderson (Chicago: Richard D. Irwin Inc., 1950), p. 267.

[3] P. D. Converse, H. W. Huegy, and R. V. Mitchell, Elements of Marketing, (New Jersey: Prentice-Hall, Inc., 1958), p. 5.

[4] Theodore N. Beckman and William R. Davidson, Marketing (New York: The Ronald Press Company, 1962), p. 13.

> But there is a second meaning to "marketing": it is a way of viewing the entire business as existing in contemplation of customer needs and wants--both if the business is seen as a cell in the belly of society, and the economy, and if it is viewed as an autonomous, profit-seeking organism of its own.[5]

The marketing management concept encompasses activities associated with the process of bringing goods to the attention of buyers and effecting their sales. Marketing activities indicated by most current writers include: (1) communicating product information to potential buyers or personal selling, (2) advertising, (3) product display or packaging, (4) selling and related sales activities, (5) retailing, (6) product planning, research, and technological development, (7) transportation and storage, (8) financing and risk bearing, (9) market information or intelligence, (10) pricing policy, and (11) extensive development and coordination of these activities into the marketing management organization.

The prime activity of importance to defense marketing is marketing information or intelligence: interpreting the needs of the market, i.e., type of products to produce and the value the market places on these products. This leads to pricing functions, and marketing management plays a major role in a firm's product and pricing policy, the actual formulation being shared with production and financial management.[6]

The marketing concept is an approach to business organization which is consumer orientated. Further definitions have stressed profit objectives and organizational relationships as a means of more precisely defining the marketing concept. Many companies view this concept as the function which plans and executes the sale--all the way from the inception of the idea, through its

---

[5] Hector Lazo and Arnold Corbin, Management in Marketing (New York: McGraw Hill Book Company, Inc., 1961), p. v.

[6] Kenneth R. Davis, Marketing Management (New York: The Ronald Press Company, 1961), p. 4.

development and execution, to the sale to the customer. The idea of the product is conceived after careful study of consumer wants and needs, likes and dislikes. With the idea in hand, the marketing department functions as a universal joint in the corporation to translate the idea into product, and product into sales.[7]

The origination of the marketing emphasis is generally credited to Ralph Cordiner, who, as vice president of General Electric in 1952, recognized the gradual change from production emphasis, to market emphasis.[8] The marketing concept plays an important part in defense marketing. It is not unusual, therefore, that this concept should have first been recognized and developed by a company engaged in major defense work. The defense business of General Electric, for example, has shown a major shift from production to research and development efforts, thus requiring an even greater market intelligence and planning system. The company must be strongly customer orientated at all levels of the organization.

A large segment of industry today tries primarily to produce in accordance with defense requirements. The efforts of industry to research and develop products for the defense establishment without prior requirements having been established have been very minor.

There is a procedure now in effect called the unsolicited proposal, which has been developed to simplify procurement business. It solicits contractors formally through "Requests for Proposals" and awards contracts as a result of interest stimulated originally by the contractor.[9]

---

[7] Lynn H. Stockman, ed., Advancing Marketing Efficiency (New York: American Marketing Association, 1959), p. 107.

[8] Lazo and Corbin, loc. cit., p. 5.

[9] Pat Thomas, "An Introduction to Defense Marketing," Data Publications (December, 1961), p. 15.

This procedure, however, still obtains an agreement from the defense establishment prior to industry's going into production operations. It is normal for the defense establishment to initiate the initial research and development efforts, and then turn the research results as well as requirements over to industry. These comments are particularly directed toward the major procurement areas of missiles and military equipment requirements. Probably the major reasons for this is that industry cannot afford to invest and research an area until the defense establishment indicates a real interest or requirement.

Marketing management then can be seen to encompass areas of market intelligence and planning, product analysis and development, pricing, and promotional policies together with a consumer orientated supporting organization. These are the prime elements of a marketing program, and each has significant alternate courses of action. This is the marketing mix of today. Marketing is primarily organizational, with all activities relating to the customer and the satisfaction of his requirements in a single organizational entity, a marketing department.

The defense marketing organization.--The most common organizational approach to implement the marketing concept in the consumer and industrial industries has all the functions of marketing, i.e., market research, product planning, sales, order service, customer service, advertising, and sales training reporting directly to the chief marketing executive. Each function has equal status in theory, but this seldom happens in practice. This organization is recommended by General Electric for its various divisions.

Another approach has evolved wherein the chief executive's span of control is narrowed by introducing another level of management. This level lies

between the chief marketing executive and the heads of the various marketing functions. It consists of one line organization, including sales, order service, and customer service functions, and one staff organization, including market research, product planning, and advertising functions.

These organizational approaches both take cognizance of the prime marketing responsibilities of identifying the customer, relating the product to the customer, selling to the customer, and providing service to the customer. All customer requirements are brought together in the marketing department.

While these organizations were developed primarily for industry goods and consumer goods industries, they have served equally well for defense marketing organizations.

The sales organization in defense industry finds its job a little different from its counterpart in consumer and industry marketing. There are few off-the-shelf products in defense, and the defense sales organization must usually determine requirements and make them known to the engineering groups and to management so that a proposal can be prepared and a bid entered. The defense salesman must have considerable technical ability in addition to the other sales attributes. The defense salesman sells to fewer customers, usually, but must maintain extensive contacts internally with customer's engineering, manufacturing, and financial functions. In this connection, a salesman will learn of military requirements and gather much information about military technology and about the competition's activity. The salesman must be able to relay these communications back to proper levels in his organization.

In defense business the order department does not carry out a routine clerical function but an extremely complex contract administration function, maintaining compliance with the many contractual terms and requirements of

Government. It is not unusual to find this organization over-worked in comparison with its consumer and industrial marketing counterpart.

An area of major difference lies in the functions of the customer service department. In most consumer and industrial industry marketing organizations, the customer service department is responsible for maintaining an appropriate inventory for service to customers. The defense industry, however, has outgrown this limited concept of service. Manpower restrictions and inadequate facilities in the military services have caused the military to look to the manufacturer for this type of service function. It is common for defense industry to have specially trained engineers who study the military requirements and recommend appropriate inventories and maintenance support levels. They also engage in the identifying and selecting of spare parts to form a logistics function. This is a very large and complex business within a business. It takes on importance when it is seen that the services will spend more for maintenance than the original item price, and from 20 to 40 percent of original cost for spare part procurement.

Another important organizational difference is the emphasis placed on market research. In the consumer and industrial marketing companies, market research determines the location of customers, how much he can buy, defines sales territories, establishes sales quotas, and performs statistical research. In defense companies, market research is combined with market analysis, and it is responsible for searching out new developments in military technology and learning about probable future defense requirements, so companies can select those programs that are best suited to their particular capabilities.

The product planning function in defense markets also differs considerably from consumer or industrial markets. The difference is attributed essentially to custom, nature of products, and to their unpredictable lifespans. Defense

planning is closely associated with market research, and the technical requirements that are developed therein.

Advertising, a highly important function in consumer and industrial marketing, is much less significant in defense. It tends to take the form of trade shows and exhibits, which are conducted increasingly. Some formal advertising is conducted mostly to develop the picture of a company's superior ability in a field. The Government tends to also control this function by regulations (especially in allowing reimbursable costs in contracts, the government is quite strict). Security regulations also influence the what and how of advertising, as well as do proprietary information and patent rights.

The defense marketing organizations of today tend to be more like those found in industrial-goods companies, such as General Electric, where the marketing manager has a greater span of control. Table 4 has been developed to reflect this organizational relationship. However, the whole area of the marketing concept in defense industry is still new to most industries. The current relatively simple organization may slowly evolve into a more complex one, due to the special nature of some defense marketing functions.[10]

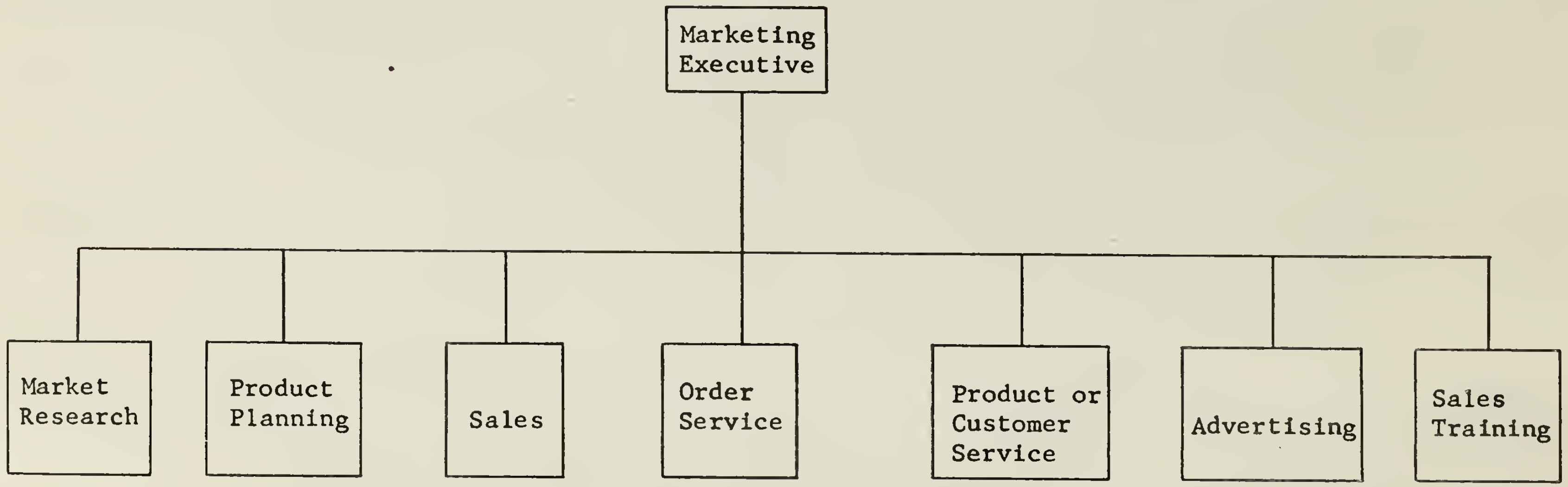
Application of the marketing concept and functions in the defense environment.--The difference in marketing to industry and consumers from defense lies in the techniques and methods used, not in the basic concepts or philosophy of marketing. Even in the techniques used, the actual difference is not too great, but lies more in the degree to which certain functions are stressed over other functions. A few consumer and industrial marketing functions, of course, do not apply to the defense market. Therefore, the author

---

[10] William F. Hafstrom, "Adopting the Marketing Concept to Defense-Industry Requirements," Defense Marketing In the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960), pp. 56-63.

TABLE 4

DEFENSE MARKETING ORGANIZATION[a]



---

[a] Developed from: William F. Hafstrom, "Adapting the Marketing Concept to Defense-Industry Requirements," Defense Marketing in the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960).

takes some exception to a statement of Dan Jingst, who writes: "Military marketing is entirely different from consumer marketing, and is different in some respects from conventional industrial marketing."[11] If one considers this statement only from the functions of marketing--such as sales organizations, distribution, promotional activities and pricing, etc.--there are some noticeable differences, but even here they are not too great, and mostly they consist of variations in existing functions of consumer and industry marketing.

The defense market is certainly unique and challenging to the producer. It is characterized by being extremely large, varied in product procurement, and spending large amounts of money--therefore, extremely inviting to most producers. Its requirements cover all products from very general use items, like mouse traps, to highly developed complex electronic systems. The defense establishment is buying for consumer use through commissaries and exchanges, which then sell to military personnel and dependents; and it is buying for further manufacturing in its own industrial establishments, and both of these in a sense have a profit motive. Finally, it is buying for military preparedness against aggression. The primary buying motive attributed to the defense establishment is technical design proposal and cost, or cost and effectiveness of the item. Buyers in the industrial goods market are governed by profit motive. They must be appealed to rationally by the salesman. They want low production costs, uniformity, and flexibility.

While the words used tend to reflect a difference, due to the profit motive aspects, the results are not so far apart. If one looks at a sector of defense marketing, and not at the whole, he arrives at greater differences; but

---

[11] Dan Jingst, "Differences Between Industrial Marketing and Military Marketing," Data Magazine, Vol. 6, No. 12 (December, 1961), p. 16.

when viewing the whole defense market, consumer, industry, and defense appear closer in overall buying motives. The defense establishment buys, in a sense, for profit motive in its industrial operation, and it wants a profit in its exchanges and commissaries. In its missile programs the Defense Department uses cost effectiveness analysis and in other ways tries to gain the same results obtainable by the use of profit.

Virtually all military goods are procured directly from producers. This is due to large unit purchase and frequent need for technical service. However, in other buying areas, especially commissaries and exchanges, the middleman system of military sales representatives is utilized extensively. There are approximately 400 firms currently engaged in this middleman business.

The defense market producers are generally well dispersed geographically when the entire defense market is viewed. However, the major defense procurement areas in dollars are concentrated in the hands of a very few prime military contractors. In terms of dollars, 100 leading corporations now have 75% of the total military prime contracts. If the subsystems and/or component manufacturers are included, the market broadens considerably.

A growing characteristic of the defense market today is centralized procurement agencies. This will definitely benefit producers in marketing to the defense establishment, and may save defense dollars. With the concentration of both producer and procurement agencies, the manufacturers of goods selling to both the industrial market and the defense market may cover their defense market with more ease than is possible when covering the industrial market.

Probably one of the major areas of difference in marketing to the defense establishment rests in the procurement contracting processes. Industry does not have anything quite like it. This subject has a detailed coverage in Chapter IV.

The fastest growing phase of defense marketing today lies in the market research activities. This is particularly true in the electronics industry. many defense producers have organized formal marketing or requirements research departments. Prior to Korea marketing research, as well as marketing, was not considered necessary because most defense contracts were obtained by simply responding to government requests. In the years ahead, military marketing researchers will assume a much more important position in determining defense marketing data and in providing sufficient information to predict shifts in the market in order to select those programs which offer the greatest likelihood of success. The company can then select the progress it has the capabilities actually to accomplish.

In industrial marketing, research emphasis is placed on marketing programs, product planning, distribution channels and distributor relations, pricing, management of industrial salesmen, management of advertising, and sales analysis. Military marketing research is concentrated more on market information, and very little on sales analysis and evaluation. Many electronic concerns are expanding their marketing research to aid in the determination of the companies' long-range objectives, and the technical product areas in which they should specialize. The concern of most companies today is whether to concentrate on production,or on research and development. The defense budget is an important key to the long range trend in defense spending. Research and development funding is becoming quite important. The two major sources of information on the defense market consist of technical reports on scientific and engineering development and the military budget, along with federal spending trends. Military sales engineers often constitute the main intelligence gathering system within the market. Other sources of marketing research information are trade

associations, military agencies, conferences and seminars, publications, and trip reports from engineering and marketing specialists.[12]

Marketing to defense and by defense.--Defense marketing must be viewed from two positions: marketing to the defense establishment carried on by industry, and those marketing activities conducted internally by the defense establishment. Certainly for the purposes of this paper, and its impact on the economy the important area is marketing to the defense establishment. Many special groups have been interested in the expansion of government enterprise operations, including the activities carried on by the government in the area of the commissary and post exchange retail operation, but the validity of arguments for, and against these functions cannot be covered within the scope of this paper.

Internal defense marketing consists of carrying out many functions similar in nature to those marketing management functions carried out in the private economy sector for consumer and industrial type marketing. It includes the following rather representative activities: product and market planning, research and technological development, packaging, transportation, storage, or distribution, product pricing, and even selling and related sales activities.

How is the defense establishment involved in marketing? Like private industry, the Government is a manufacturer of goods and performs a wide range of services for its customers. Unlike industry, however, the Government is working under vastly different rules of competition. One example of a Government enterprise is the manufacturer of clothing articles accomplished by the U.S. Army Clothing Factory, Philadelphia, Pennsylvania. In this operation problems similar to those occurring in private industry also occur in the

---

[12] Ibid., pp. 16-18.

defense operation, i.e., market analysis, pricing and costing, product analysis, distribution, sales, although sales are controlled through military outlets and not in a competitive market.

The object of all business is to provide the consumer with the goods and services he requires and demands. The incentive, and reward to the businessman is profit; but profit is the incentive and not the only object of business. Business exists to supply human wants, and this object exists in both private business and defense business enterprises. While specific money profits as such do not exist as a strong incentive in defense, a mutual requirement for economy and efficiency do exist in both private and defense business. The defense incentive is economy and efficiency in operation, and furnishing the products for the lowest dollar cost possible.

The providing of services, as distinguished from goods, is another broad phase of marketing, and in this the defense establishment contributes to a large extent. It provides entertainment, education, medical care, legal assistance, laundry, barber, and repair services, housing rental, etc. These functions become more noticeable and important as military incomes rise and in areas of more remote duty assignments. In providing service functions, there is less use of so-called marketing institutions acting as intermediaries or as middlemen. There are, however, many problems of determining requirements and desirability for services, making them available to consumers, and of selling and collecting for them.

Probably the largest consumer-type marketing functions carried out by the defense establishment are the operation of commissaries and post exchanges. In these operations the cycles of purchasing, distribution, market planning, product planning, sales, and retail outlet operation all pay a most important part.

Private industry markets to the consuming defense establishment, which

must then perform certain functions that would normally have been accomplished by private industry in marketing to a private consumer. The procurement organization is not the final consumer, in many cases of the products it buys, and it is therefore engaged in a tremendous distribution system involving transportation and warehousing in order to get the materials required down to the using units and troops. In private industry these are functions of marketing carried out by the wholesales and retailer. These functions are extensions of the private marketing effort and, of course, are also parallel in operation.

There is little desire on the part of private industry to enter most of these functional areas. However, there has been a growing tendency for the elimination of those marketing activities carried on by commissaries and post exchanges. It is extremely difficult for these businesses to continue in operation since they cannot compete with the merchandising operations of private businesses. The Secretary of Defense recently placed a requirement on commissaries to eliminate various competing brands from their shelves. The post exchanges are also restricted in the variety and cost of merchandise that they can stock for sale. Government's restrictions of its own business at the insistance of private pressure groups is going to seriously endanger the future efficiency and economy of its own marketing operations and even their continual survival. It appears that many times, when a certain function is unprofitable, it can then be left for defense operation, but if a profit is available, then the private enterprise system steps in, and this leaves little for defense in the way of an overall profitable operation. It is easy to draw many more lines of parallel marketing operations by defense and the private economy, but for the purposes of this paper it should not be required as long as the proper relationships are noted.

CHAPTER III

MAJOR PROBLEMS AND ISSUES

The major problems and issues in defense marketing.--The major marketing problems and issues of today and for the near future generally fall into five broad categories:

1. The changing nature of the defense market, and resulting problems in market identification and analysis.
2. Problems in organizing and managing the defense marketing effort.
3. Procurement and contracting practices.
4. Public relations.
5. Problems derived from the "weapons systems" concept.

In the first broad problem area are many elements which are possible to isolate into individual problems:

1. Rapid technological change.
2. The changing "product mix".
3. Increasing market research and planning requirements.
4. Increasing market intelligence requirements.
5. The changing pattern of defense business.[1]

Problems which have been indicated by some authors for marketing in all types of industrial and consumer markets are as follows:

1. Planning and products (market research).
2. Planning the market.
3. Organization structure.
4. Distribution of products.

---

[1] Joseph M. Hertzberg, "Defense Marketing In the Next Ten Years: Some Potential Problems," Defense Marketing In the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960), p. 42.

5. Sales promotional activity.

6. Advertising.[2]

These are closely related to the above problems that have been indicated for defense marketing. However, while the titles and general scope of functions involved are the same, the specific details and reasons for the problems are peculiar to defense.

<u>The changing nature of defense markets and resulting problems in market identification and analysis</u>.--This is a prime problem area in defense marketing today. The development of this problem area centers around the dynamic, volatile, type of market with which we are dealing. It is natural then to find in this market, problems associated with its rapidly changing technology. Weapon developments are sometimes superseded even before production plans can be formulated. We often see the cancellation of major projects, such as the B-70 and the skybolt. The basic problem today and for the future is really that of too rapid a technological change, and from this the other problems have actually developed. It is growing more difficult daily for industry to keep pace, and this is affecting organizational concepts, personnel recruitment, and training, public relations, and other problem areas.[3]

The changing product mix is a result of the technological advance over the past years, causing a major shift in defense industrial emphasis toward more research and development and away from high volume quantity production of the past. These shifts have already shown themselves by a series of resulting problems to the defense industry as indicated below:

1. Total employment in defense industry is decreasing even with increases in the total volume of business. The Aerospace Industries

---

[2] Kenneth R. Davis, <u>Marketing Management</u> (New York: Ronald Press Co., 1961), pp. 1-284.

[3] Hertzberg, <u>loc. cit</u>., p. 43.

Association, primarily a defense contractor, reported a decrease of 23% for the 3½ years up to 1960. However, within the industry, there has been a considerable shift in employment with increases of scientists, and engineers.

2. The shift in production emphasis from high quantity production to low quantity production and research and development effort has brought about a considerable overcapacity of production facilities. In 1960, this was estimated at 25%.

3. The profit picture for defense industry is generally down. The ratio of net profits after taxes to sales for the aircraft and parts industry has shown a decline from 3.8% in 1955, to 2.4% in 1958, to 1.5% in 1960. Some of this is attributed to the civilian jet-transportation program that has been conducted by many companies, but in general, all companies appear to be decreasing in about the same proportion.

4. The defense industry is an extremely competitive field. The competition exists not only in the material sense, but also in the area of ideas, and technologies relative to the nation's future defense needs.

5. A final important factor is the attitude of defense industry, and government toward business policies and practices. Congress is actively looking into the following areas:

    a. Renegotiation of defense profits.

    b. Allocation of defense business to small businesses and to distressed areas.

    c. Use of incentive contracts in defense procurement.

    d. Patent ownership arising from research and development work financed by the Government.

    e. Idemnification of contractors engaged in extra-hazardous activities under Government contracts.

    f. Relationships between industry and Government in the conduct of the nations defense program.[4]

Planning the product strategy (intelligence).--With the size and ever changing technology of defense, the second major problem logically follows. This problem again is not a single area, but an interrelated group of problems

---

[4] Lee K. Alexander, "The Current and Near-Term Outlook In the Defense Market," Defense Marketing In the 1960's, ed. Marketing Division, American Management Association, Inc. (New York: AMA, 1960), pp. 30-31.

which center around the ability of industry to obtain required intelligence about the possible requirements of various defense markets, planning the market, and planning products through extensive research and analysis.

The first step in product strategy is obtaining market intelligence, which is a relatively new field of management endeavor; a field growing in importance at a faster rate than any other marketing management function. Intelligence is information, and this is the important word, information of a technical or general nature, which contributes to improvement of a firm's competitive position. The information may be derived from an analysis of customer requirements, planning date, procurement contracts, budget statistics, statements and comments, proposals, competitions, and product analysis.

Defense industry is the primary focus for new weapons development, in contrast to the period prior to World War II, when weapons requirements originated almost exclusively within the defense establishment. For this reason, marketing functions throughout defense industry have grown beyond just collecting information and have assumed a significant role in contributing to long range development planning of the defense effort.

In the field of electronics, especially the missile industry, it is important to have market intelligence as far in advance as possible. The administration, in fiscal year 1962 funding, placed more emphasis on production --getting existing systems operational--rather than on research and development. This represented a sudden major shift to the industry. Many smaller firms subsisting on research and development felt the pinch.[5]

In the field of product strategy and its associated parts--intelligence, product planning, market planning, etc.--the Defense Department is actively

---

[5] Pat Thomas, "Introduction to Defense Marketing," Data Publications (Dec., 1961), p. 41.

engaged in seeking a solution with industry. This, of course, is not an easy area, since competition and the free enterprise system are important, and the Government must not show favoritism to any individual industry. Much has been accomplished by use of various industrial associations. These associations represent all businesses engaged in specific industries such as the Aerospace Industries, or general manufacturing such as the National Association of Manufacturers or as previously mentioned, an association such as the National Security Industrial Association which represents all of defense industry in an effort to concentrate on the problems of our national security.

It has been generally accepted that the military-industrial contractor team system is an important factor in our national defense posture. United States defense contractors often make ill-informed and sometimes erroneous assumptions with respect to Soviet technical capabilities. Government's own plans are also not sufficiently relayed or understood by industry. Considerable effort should be expended on this weakness. The efficiency of the industries that support our defense effort is as important as the efficiency of the Defense Department. Because of the critical relationship that exists in either defense or industry inefficiency results in increased burdens on the taxpayers. The industrial, defense team should not just be a phrase; it should be the major emphasis of the Department of Defense, the President, and Congress. This coordination and integration of defense and industry will only ultimately function with the full awareness and support of the country. Hopefully, this will be accomplished with a minimum of Government control.

This paper cannot cover in detail all the problems and issues facing defense marketing today. However, in considering the economic impact of defense marketing it is important that major consideration be given to the various

implications of procurement policy as established by the Congress, President, and Department of Defense.

There are many problems in the defense-industry team relationship which are closely tied together in the details of the procurement regulations and system. The real problems, however, do not lie totally within the procurement system which is only the result of an underlying philosophy that exists at higher levels with the President, Congress, and the American people. It is this fundamental philosophy in defense and industry relationships that must be resolved. Can a relationship be developed that will be both efficient and practical and will it be allowed by the people and Congress? Will industry that deals with the Government remain private enterprise or become quasi-public? How does profit motive affect the relationship and can it be compatible?

These areas will be explored in the following chapters, not to give the reader final solutions, but in an effort to give the reader a better insight into the economic social, political and defense implications of procurement policy on defense marketing.

CHAPTER IV

THE MULTIPLE IMPLICATIONS OF PROCUREMENT POLICY

This chapter has been developed to give the reader a concise view of the economic, social, political, and defense implications of procurement policy as it exists today in the Department of Defense. It is not intended to furnish the reader with a complete survey of the defense procurement regulations, which are well documented in many publications, nor will this discussion try to survey all the many detailed problems associated with the procurement system today. It is intended, however, to develop sufficient background to present a total view of the major underlying problems in the procurement system as currently employed or proposed for the near future. In this study it becomes obvious that the major underlying problems in procurement affect the entire United States economy and future relationships between defense and industry.

The procurement system is the prime vehicle whereby goods and services of industry flow to users in the defense establishment. These goods and services, besides allowing the objectives of national defense to be carried out, also act as a focal point and primary tool through which Congress and the President can carry on other economic, social, and political aims. The required control over objectives in these areas can be exercised by the procurement policy developed. Under the emotional cover of national defense requirements the Government is able to carry out major manipulations of a large sector of our economy. In terms of gross national product Government spending averages approximately 10% of the total. These comments are not to infer that these policies are bad or not desirable for the public welfare, but they should be recognized as costly to the defense effort. What the public may regard as the

rising cost of defense procurement is not all chargeable as defense costs.

The Secretary of Defense has indicated that when he first took office he was given two instructions by the President which quite effectively express the importance of procurement in the Defense Department.

1. Develop the force structure necessary to our military requirements without regard to arbitrary budget ceilings.
2. Procure and operate this force at the lowest possible cost.

This has required intense scrutiny of our procurement and logistic policies, since 70% of every defense dollar is spent on purchases. The Secretary has now developed plans to reduce costs in defense procurement $1.7 billion by 1965.[1]

<u>The conflict of policies in procurement today</u>.--As a general evaluation of the procurement picture in defense today, it can be characterized as a truly bureaucratic system, highly structured, eliminating individual initiative and judgement on the part of the departments, extremely costly to operate, subject to mismanagement as indicated by the vast number of General Accounting Office reports, and the cause of frustration, and complex bewilderment on the part of industry.

Procurement takes place in each echelon of the military establishment from Defense Department, Military Departments, Bureau, down to field installations. There are thousands of people involved in this functional area and the number grows each day. There are approximately 887 procurement offices involved in the defense establishment procurement process.

Procurement in the defense establishment is involved in more than just satisfying the requirements and plans of the various units requiring goods and

---

[1] Vice Admiral George Beardsley, Chief of Naval Material, U.S. Navy Department, A presentation to the Navy Graduate Financial Management Program, George Washington University, December 17, 1962.

services for national defense. As previously mentioned, it is also used as a prime tool for implementing the Nation's social and economic policies, both domestic and foreign, as directed by Congress and the President. This aspect of procurement often becomes more important than the economic requirements and justification of a specific item. It is not sufficient to determine an economic requirement for an item and to locate potential suppliers through negotiation or advertising, and to obtain a competitive price. The purchasing official must also consider the specific type of contract to be employed, requirements for channeling contracts to small businesses, and labor surplus areas, whether livestock was handled and slaughtered in a humane manner, whether non-discrimination exists, the rates of pay, hours of work and other labor standards, observe compliance with Buy American Act, and many other items, depending on the type of goods and services being procured.

Many of these regulations are the result of specific Congressional Laws and many reflect actions of the President and the Secretary of Defense. While this paper could not hope to cover in debth all the various areas of economic, social and political pressure that exists today in procurement, a few very interesting examples have been noted recently and are worthy of comment in the context of this paper.

Mr. Drew Pearson recently commented on a visit with Mr. McNamara by Senator Leverett Saltonstall and their friend and constituent Charles W. Colson, lobbyist of the Harrington and Richardson Arms Company of Worcester, a firm which sought to continue their M-14 rifle contract. While indicated in the article as an unusual action for lobbyists and United States Senators to call on Cabinet members concerning defense procurements, this would lead one to really wonder how unusual this is in practice. It appears from the article that the Army already had one million extra rifles, and was planning to transfer to another

rifle the AR-15. The Worcester firm's costs were $17.00 per rifle higher than a competitor, the Thompson-Ramo-Wooldridge Company, which had a current contract for 219,691 rifles at $79.50 each. However, two other firms had contracts for approximately $97.00 and $104.00 respectively. These were all on negotiated contracts, not bid.

The Secretary felt that Harrington and Richardson had certainly been treated poorly by the Government in past years and deserved better treatment. Therefore, a team of "experts" would be detached to aid the town of Worcester in producing something in the current defense picture. The Defense Department had previously been able to help Presque Isle, Maine, in connection with the "Snake" contract and Witchita, Kansas, with the end of the Boeing bomber contract. The Secretary apparently did not extend the rifle contract and the delegation departed.[2]

The conclusions in this episode are left to the reader. It certainly leaves many questions for which there may be excellent answers. Everyone has their own code of ethics and must live with them.

Another rather "hot" issue currently exists in the TFX aircraft contract award to General Dynamics Corporation. It has been indicated that Boeing Aircraft Company had been favored by the Air Force and Navy Officer Study Team as a superior performance aircraft and available at a considerably lower bid price. Secretary McNamara stated that Boeing could not produce it for their bid price and had seriously misjudged the difficulties to be expected in this aircraft of new concept.

Are there political, social, or economic considerations involved? Actually, at this point, it is uncertain and under Congressional investigation.

---

[2] The Washington Post, March 6, 1963, p. D13.

The final conclusion to this, it is believed, will be that General Dynamics will keep the contract, the public will pay the price, and there will not be a real answer published to the public.[3]

The handling of contracts has always been of key interest to Congressmen, for obvious political reasons. There is considerable interest now in geographic shifts in contract distribution, and we may find that contracts will in the future be allocated by geographic area in order to spread spending to specific areas--the "old pork barrel" in operation. The economies of 22 of our states depend in abnormal degree on the maintenance of military spending. The most severe are Kansas, Washington, New Mexico, California, and Connecticut with 20% to 30% of their manufacturing employment in major defense procurement. In past years there has been a continual shift of technology from the midwest and east north central regions to the pacific and mountain states.

The flow of gold and maintenance of favorable Canadian interests has presented an economic versus international problem. As part of the flow of gold program the Defense Department requires its overseas commands to return many of the proposed purchases of supplies and services for use overseas to the Continental United States for procurement from sources at home (where price differential is expected to be less than 25%) and subsequent shipment back overseas.

The Buy American Act permits Canadian bidders to offer Canadian products in the United States with certain advantages over products offered by other foreign countries. The current flow of gold program does not permit Canada to be considered in a more favorable position. The United States and Canada have a mutual Defense Development Sharing Program and have been proud of the vast unpatrolled border as a sign of mutual trust; this could well be jeopardized by current policies.

---

[3] Navy Times, March 9, 1963, p. 6.

Besides the many social/economic controls placed on procurement there has also been considerable use of funds control through budgets, appropriations, apportionments, obligations, and expenditures to affect the economic position of the country. It has not been unusual for the Bureau of the Budget to restrict payment at the end of a fiscal year for contracted procurement items in order to give an impression that the administration had not spent as much in a particular year as it actually had spent. This naturally has an adverse affect in conducting business with industry.

The sum effect of all these conflicting objectives, while benefiting some specific industries, pressure groups and selected individuals, is actually extremely detrimental, when taken as a whole, and generally leads to confusion and inefficiency in a system designed to provide primarily for our national defense.

The National Security Industrial Association, which represents over a thousand defense industries, has stated that policies like the Small Business Program, Buy American, Non-discrimination, etc., are not fundamentally related to sound procurement, i.e., whether the Government receives quality equipment at the lowest prices, and it probably causes a negative cost-benefit ratio since it pays for the additional government organizational structure and policing of contractor requirements. Social/economic programs generally are of questionable value to the welfare of the country and have no place in the vital work of our Nation's defense efforts.[4]

This is an interesting criticism of programs such as the Small Business Program and Buy American Act, which were established to assist American industry and the small businessman. It is quite possible that these programs are not

---

[4] National Security Industrial Association, Report of Cost Reduction Study, A Report Prepared by the National Security Industrial Association (Washington, D.C., 15 June 1962), pp. 75-96 and 152.

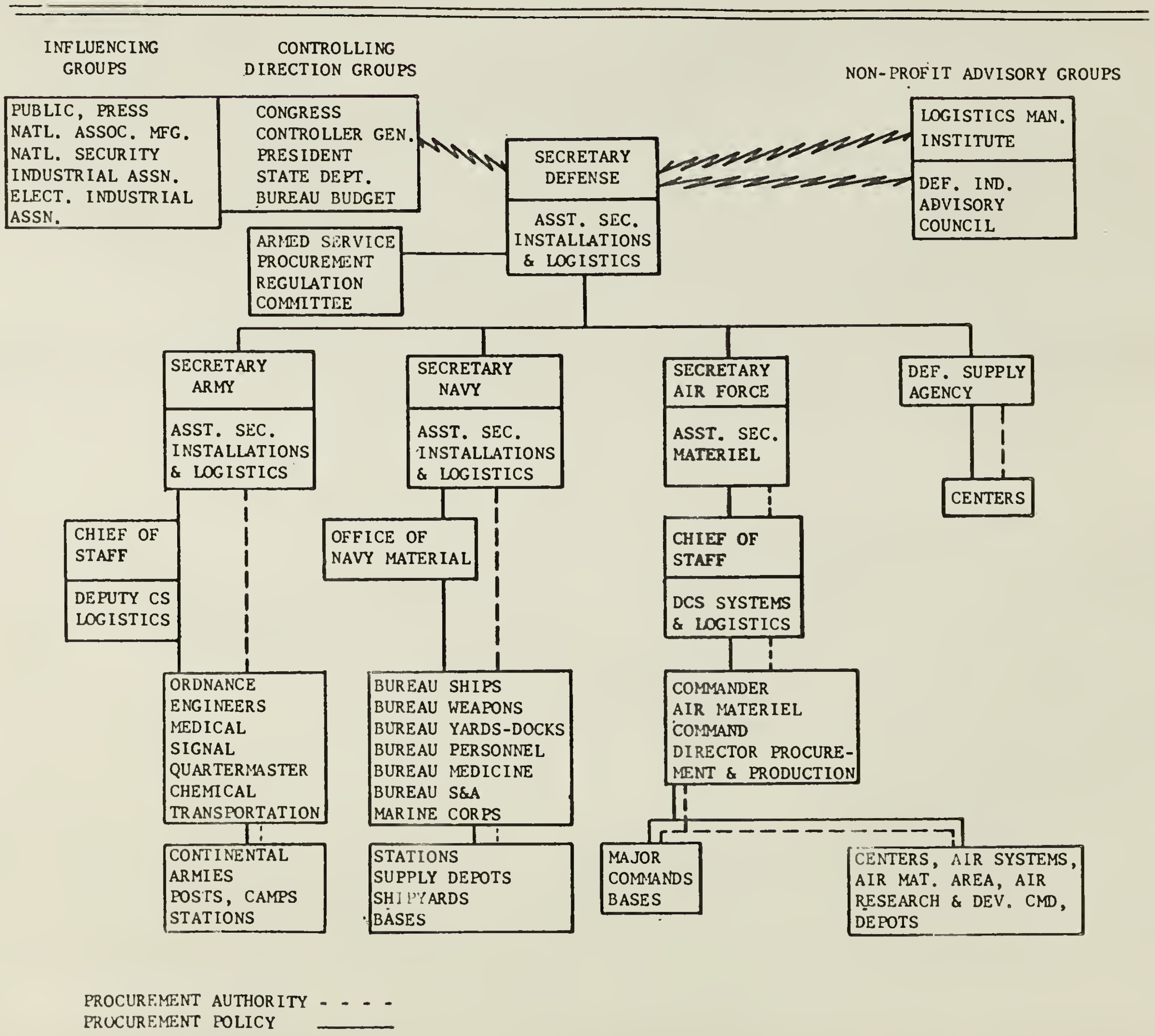
really serving an effective purpose. The dollar value of contracts for small businesses has been quite small amounting to approximately 5% of our procurement. Even without the programs it is possible that many of the low dollar contracts would go to smaller suppliers who could furnish quality and price advantages over larger suppliers. It is recognized that the underlying reasons for actively supporting the small businessman is to obtain a larger base of defense suppliers in order to maintain competition and hold down the large corporation expansion; but it is contended that this is not being achieved and what is accomplished is at an extremely high cost to the taxpayer.

The procurement organization.--The procurement organization in the Defense Department is outlined in Table 5. Under the Secretary of Defense, the Assistant Secretary of Defense, Installations and Logistics establishes procurement policies and procedures for the entire Department. Procurement authority is vested in the secretaries of the military departments and the director of the Defense Supply Agency by statute.

The Armed Services Procurement Regulation Committee develops uniform procurement policies and procedures for issuance by the Assistant Secretary of Defense. This is a tri-service committee with representation from the Office of the Assistant Secretary of Defense. The Assistant Secretary of the Army, Installations and Logistics, has the authority for carrying out procurement functions throughout the Department of the Army. In the Navy Department the Assistant Secretary of the Navy, Installations and Logistics, directs the efforts of the Bureaus and Offices of the Navy Department in procurement matters. In the Department of the Air Force, procurement authority has been delegated by the Assistant Secretary of the Air Force, Materiel, through the Chief of Staff and Deputy Chief of Staff, Systems and Logistics, to the Air Materiel Command. The Air Materiel Command is responsible for the Air Force central buying program,

TABLE 5

PROCUREMENT ORGANIZATION OF THE DEPARTMENT OF DEFENSE DEPICTING FLOW OF PROCUREMENT AUTHORITY AND POLICY GUIDANCE



which accomplished its major systems procurement and accounts for all procurement except research and development and local base requirements.

The Defense Department took a big step toward increased efficiency in overall supply management in 1956. Under this program, the basic supply functions for selected commercial type commodities and services used in common by the military departments were integrated. Management of each was assigned to the secretary of one of the departments as a single manager. The military departments formed separate operating agencies, usually jointly staffed by personnel from all services. Procurement management responsibility for subsistence, clothing and textiles, hand tools and housekeeping supplies, and traffic management was assigned to the Army; the Navy manages medical supplies, petroleum, ocean transportation, and hardware and abrasive supplies, and the Air Force manages air transportation.[5]

The establishment of the Defense Supply Agency on 1 January 1962, has been the most recent major advance by the Department of Defense to effect a more economical handling of the Defense Department logistics system. It will handle wholesale procurement and distribution of supplies and provide assigned management services necessary to carry out this function for the military departments. It is anticipated that this agency, while providing effective logistic support for the operating forces of the military departments, will provide that support at the lowest possible cost to the taxpayer.

The Defense Supply Agency has organized former single manager supply services of the separate services into one central agency. Specifically, the agency will manage items of materiel in the following categories: subsistence,

---

[5] U.S. Congress, Senate, Procurement Subcommittee of the Committee on Armed Services, Hearings, A Study of Military Procurement Policies and Practices as Required by Section 4(a) of Public Law 86-89 (Amending the Renegotiation Act of 1951), 86th Cong., 2nd Sess., 1960, Part I, pp. 12-19, C.F.

medical, clothing/textiles, petroleum, general military supply, automobile supply, construction, electronics, industrial, and traffic management.

The central procurement of these items is of major benefit from the standpoint of more economic procurement by the government, and will provide industry with a central location and direct link to transact business pertaining to these areas. The agency primarily procures only those items in each category which are common to all three military departments or are procured in large quantities. There are actually many items in the previously mentioned categories which may have relatively low usage by only one service and these will continue to be procured as required by the particular military service involved. The largest dollar value areas of procurement, at this point in time, are still left to the military departments, i.e., aircraft, missiles, ships, military hardware, etc., and, as indicated, many items peculiar to one service. The more recent assignment of electronics procurement could increase the dollar value considerably; however, much of this procurement is still associated with specific weapon systems and will continue to be procured in the military departments.

Today, for the items it manages, the Defense Supply Agency is responsible for that part of the supply pipeline closest to the producer, and the military departments are responsible for that part of the supply line closest to the operating forces. The military departments will also continue to determine their requirements and retain complete control over their tables of organization and equipment, tables of allowance lists, et cetera. The Defense Supply Agency computes quantitative replacement requirements based on normal usage factors and projected military department requirements.[6]

There is another centralized procurement program which should be

---

[6] Rear Admiral J. M. Lyle, "Defense Supply Agency--Today and Tomorrow," Presentation to the National Security Industrial Association (Washington, D.C.: September 27, 1962), pp. 1-11.

mentioned. This is the Government-wide interdepartmental procurement program operated by the General Services Administration. Under this program the General Services Administration procures certain commonly used, commercial type items for all Government agencies, including the Department of Defense. This agency handles such common items as office furniture, typewriters, floor coverings, sparkplugs, vacuum cleaners, and so forth. A Federal Supply Schedule is issued, and it is mandatory that it be used. Over 50% of the procurement activity of this agency is for the Defense Department.[7]

In 1961, the Secretary of Defense announced the establishment of the Logistics Management Institute. This is a non-profit, fact finding and research organization, guided by a group of trustees, and supported by a contract with the Defense Department. This institute will tackle many major problems in defense procurement. Their broad guidelines consist of studying what to buy, how to buy, and how to manage inventories more effectively. The organization is staffed with top management personnel, some with prior Government experience, but mainly with civilian management experts from industry and universities.[8]

Another organization maintaining a close semi-official status with the Defense Department on procurement matters is the Defense Industry Advisory Council. This council consists of representative top management personnel from defense industry. The council has been quite beneficial and influencial in recent Defense Department efforts to reduce costs through profit motivation, and procurement policies in general. They also act as an unofficial industry screening board for changes to the Armed Services Procurement Regulations.

There are also many other directing, controlling and influencing groups

---

[7] Senate Subcommittee on Procurement, Committee on Armed Services, loc. cit.

[8] Department of the Navy, Procurement Division, Office of Naval Materiel, "Logistics Management Institute," April 1962.

outside the Defense Department which exert an important role in the operations of the procurement organization established in the Defense Department. A few of these groups have been indicated on Table 5.[9]

Procurement methods and contract types.[10]--The basic body of procurement law applicable to the Defense Department is contained in Chapter 137 of Title 10, United States Code. This chapter is the codified restatement of the Armed Services Procurement Act of 1947, Public Law 413, 80th Congress, the Act of February 19, 1948. The substantive changes in the Act have been minor. Hence the procurement law as it now appears in Chapter 137, Title 10, USC, is essentially the same as that approved in the 1947 Act. This does not constitute authority to procure supplies and services, but prescribes the procedures to be followed in procurement when the authority for such procurement exists elsewhere.

This Act incorporates into the body of permanent law the procurement flexibility needed to develop and purchase the wide range of products and services required by the military services. This Act appears to be quite sound and flexible enough to meet most current day requirements; it stresses procurement by advertised bidding, but recognizes seventeen cases in which negotiation can be utilized. It also outlaws the cost-plus-a-percentage-of-cost contract from which much harm and misuse resulted during World War I, but it does recognize the use of cost-plus-fixed-fee contracts.

Basic policy and procedural regulations for procurement and contracts are contained in the Armed Services Procurement Regulation (ASPR). The Armed

---

[9] Supra, p. 40.

[10] A complete discussion of contract methods and types, from which this section was developed, is contained in the following sources: Senate Subcommittee on Procurement, Committee on Armed Services, loc. cit., Part 1, pp. 42-91, and Part 2, pp. 117-128; and Department of Defense, Armed Services Procurement Regulation (Washington: U.S. Government Printing Office, 1960), pp. 325-339.

Services Procurement Regulation started as a concise statement of principles and philosophy to guide contracting officers in exercising the discretion given them in the liberal Armed Services Procurement Act. Its subsequent expansion and augmentation by counterpart regulations in each service has been accompanied by an unyielding administrative adherence to its forms and details until it has become a straight-jacket. It is becoming more difficult to get any provision in a contract which is not prescribed in a regulation. Deviations from the regulations are granted, but with high level approval.

Considerable criticism has been directed over the years at the Armed Services Procurement Regulation as developed by the Department of Defense. This regulation has gradually centralized control over procurement policy and requirements for the defense establishment. Over the past years there has also grown up in each service separate procurement instructions to implement the Defense Department procurement policy. This has been extremely confusing, and wasteful, and frequently in conflict with the intent and working of the Armed Services Procurement Regulation. Action is currently in process to eliminate these separate instructions and to incorporate useful required information into the single Armed Services Procurement Regulation for all services.

There are two basic methods by which procurement takes place in defense: formal advertising and, under certain prescribed conditions, negotiation. The selection depends on that which is most advantageous to the Government, from a price and quality standpoint and various other considerations depending on the specifics in each case. Formal advertising has been considered most nearly to represent "The American Way of Life." Congress has strongly stressed this method over negotiation. Formal advertising is conducted in accordance with prescribed procedures. The agency must publicize the invitation for bids. A

date and hour for bid opening is set in advance, and bids are publicly opened and recorded at the time. Award is made to the responsible bidder whose bid, conforming to the invitation for bids, is most advantageous to the Government, price and other factors considered. Upon award, the accepted bid becomes a legally binding contract.

The fundamental criteria for effective formal advertising are as follows:

1. A complete, adequate, and realistic specification or purchase description must be available.

2. There must be two or more suppliers available, willing, and able to compete effectively for the Government's business.

3. The selection of the successful bidder can be made on the basis of price alone, the evaluation of which is described in (2).

4. There must be sufficient time to prepare a complete statement of the Government's needs and the terms on which it will do business, and to carry out the administrative procedures.

If these criteria can be met, formal advertising is the preferred method to be used, but all too often one or more conditions are not possible in our current rapidly advancing technological age. In operation everything must be spelled out. An example, when a consumer buys a new television or automobile how much of his buying motivation can you spell out? Probably very little, but the procurement officer must be able to do this so all prospective suppliers may compete on an equal basis. The use of words and their meaning play an important part in this method. Recently, the Marine Corps determined it required a Government check bursting machine that would separate checks by a bursting or tearing action along the perforated margins and on receipt of the bid proposals all machines but one used cutting devices to separate the checks. We had previously been aware of the one company that produced an adequate burster machine, but still had to spend many weeks and additional expense in the administrative processes of requesting and receiving bids to procure the required machine.

Actually, the procurement system is established to accomplish so many divergent aims and to protect all parties that it is little wonder that it sometimes fails to accomplish what should be its primary aim of obtaining required and justified goods and services from industry.

Procurement by negotiation can be utilized in cases where formal advertising does not meet the armed services needs. The Armed Services Procurement Regulation specifies seventeen exceptions to formal advertising where negotiation can be used. These are the technical, experimental, developmental, or research nature of the item, the urgency of the requirement, the interest of national defense or industry mobilization, classified projects, and other specified considerations covered by these exceptions which authorize the contracting officer to select this method. It is also generally used in cases of procurement set aside for small business firms or surplus area and disaster area programs. In fiscal year 1962, approximately 87% of military procurement funds were obligated through negotiated contracts. Considerable criticism from Congress and the General Accounting Office is leveled at the use of negotiation in procurement in lieu of advertised procurement, but the use of negotiation increases. Little competition exists in many forms of negotiation. In 1962, approximately 50% of the procurement dollars obligated were through negotiation with one source. The element of competition is maintained as much as possible in this type of contract by requesting proposals from as many qualified sources as possible. Often design or technical competition is used when possible. The normal negotiation is publicized in advance, competitive proposals are encouraged, and results of the award are made known publicly. Award is made in the best interest of the Government, considering price, delivery, quality of product, and other factors, on the basis of original proposals or as a result of further negotiations with the firm

or firms that submitted the most acceptable proposals. This form of military procurement is used extensively in the aircraft, missile, and research and development areas.

Contracts can take many forms, with the broadest distinction being established between fixed-price-type and cost-type contracts, but within these two many variations occur. The selection of contract type involves a determination of the proper compensation arrangement. The selection of a contract type is subject to negotiation and requires a high degree of judgement. The type of contract and pricing are interrelated and should be considered together. The contract type affects the resulting price to the Government and is therefore important in obtaining fair and reasonable prices. Price analysis may provide a basis for selection of contract type. The degree to which price analysis can provide a realistic pricing standard should be carefully considered, even where there may not be full and free competition. Where effective price competition and price analysis is not sufficient, the cost estimates of the offerer and of the Government are the basis for negotiation of many pricing arrangements. The uncertainties involved in performing at the cost estimated and their possible impact on costs, must be identified and evaluated so that a pricing arrangement can be negotiated which imposes reasonable cost responsibility upon the contractor. Other important elements in the selection of a contract type are: urgency of the requirement, technical capability and financial responsibility of the contractor, adequacy of the contractor accounting system, other concurrent contracts, research, and development and test.

The fixed price contracts are of several types, and generally provide for a firm price. However, under appropriate circumstances they may provide for an adequate price for the supplies or services which are being procured. In

fixing an adjustable price, the contract may fix a ceiling price, target price (including target cost), or minimum price. The fixed-price contracts account for approximately 59% of the dollar value of contracts issued.

Firm fixed-price contract. This contract is most suitable for use in procurements when reasonable definite design or performance specifications are available and whenever fair and reasonable prices can be established at the outset. The firm fixed-price is particularly suitable in the purchase of standard or modified commercial items, or military items for which sound prices can be developed. This is the preferred contract type and is generally used for both formally advertised and negotiated procurements. This contracting method is especially desirable since it offers the maximum profit incentive in return for efficiency and cost reduction by the supplier. Of course, effective price competition is the desired method of determining the fixed-price initially. The price is based on the estimated cost of production plus profit, and every dollar shaved from the cost of production goes to the contractor. If production costs increase above his original estimates, there is the threat of reduced profits or even loss. Approximately 33% of the dollar value of contracts issued are the firm fixed-price type and account for 72% of the procurement actions accomplished.

Fixed-price contract with escalation. This contract provides for upward and downward revision of the stated contract price upon occurence of certain contingencies which are specifically defined in the contract. The risks in this contract to the contractor can be greatly reduced by the statement of contingencies. Escalations are of two broad types, price escalation, and labor and material escalation. This contract has accounted for approximately 6%, a relatively small dollar volume, of contracts issued.

Fixed-price incentive contract. This type of contract provides for an initial negotiation of a target cost, a target profit, a ceiling price, and sets

forth a final profit formula defining the extent to which a contractor may increase his profit by participating in any savings resulting from producing for less than a target cost. The formulae also provides for a reduction in profits if costs exceed target costs. The object is to build in a profit motivation to reduce costs of overall performance. In this system, however, the Government and contractor share in the difference between the target and actual costs. The problem resulting from this type of contract rests on the fact that there is usually no really effective price competition. Also the contractor is often able to inflate his cost estimates and produce an unrealistic cost target. To this extent he begins his operation with a cushion. The fixed-price incentive contract accounts for the second largest dollar value of fixed-price contracts at approximately 15% of total contracts issued. The use of this type of contract has been restricted by law to cases where it is likely to be less costly than other types of contracts, or that it is impractical to secure supplies or services of the kind or quality required without the incentive.

Price redetermination contract. This type of contract provides for a firm fixed-price for an initial period of contract deliveries or performance and for prospective price redetermination, either upward or downward, at a stated time or times during the performance of the contract. This type has been used for only 5% of the procurement dollars obligated. It has been used mostly in cases where adequate estimates of quantities of material and labor are not available, where specifications are inadequate, where total cost of performance cannot be made, and cases where price competition is not available and redetermination can assist in arriving at a reasonable price.

The cost-reimbursement type contract is designed to guarantee the contractor his costs of producing items required. Except for the straight cost contract they also allow for a fee to be paid. The cost-reimbursement type

contracts are the least desirable method of doing business from both an industry and Defense Department viewpoint. However, they have been used increasingly over the recent years, and account for approximately 41% of the procurement dollars. The Defense Department is determined to stop the increase and to reverse it. This contract has been found useful when it is impossible accurately to estimate the cost of the desired work with reasonable accuracy and when it is desirable to expedite the project. This contract has been easy to use in negotiation and acceptance of changes. For the contractor it reduces risk in Government work. These contracts have become especially popular in procurement of electronics and missiles, and in areas containing many unknowns especially research, preliminary exploration or study, and development and test.

Cost contract. This is a cost-reimbursement type under which the contractor receives no fee, but the Government agrees to reimburse the contractor for allowable costs. It is used mainly in research and development work with educational and other non-profit institutions.

Cost-sharing contract. This is a variation of the cost contract, but the contractor is reimbursed for only an agreed part of his costs.

Cost-plus-fixed-fee contract. This contract provides for a contractor to be reimbursed for all his allowable costs and is paid a fixed sum as a fee. The fee is based on the estimated costs of performing the contract, and is a negotiated fixed amount which does not vary with costs. The incentive to management to reduce costs is at a minimum, and little or no profit motivation exists in this type of contract. It is the least desirable contract of the cost types, but nevertheless accounts for 34% of the procurement dollars.

Cost-plus and incentive fee contracts. This insures the contractor a minimum fee, and permits the fee to be increased within limits if the contractor

produces for less than the original costs. Here again a realistic target cost and target fee based on a target cost must be established. Then a minimum fee and maximum fee and a formula for fee adjustment are negotiated in much the same manner as on a fixed price incentive contract. The establishment of a realistic target is vitally important in any incentive contract. The General Accounting Office has uncovered and reported many examples of inflated or excessive target costs under incentive type contracts. In these cases the profit considerations incorporated in incentive type contracts was unfairly weighted in favor of the party with the latest cost data. The Renegotiation Board, based on its judgement, has felt that the incentive contracts were particularly susceptible to loose cost determination before the fixing of firm target prices, and it allows expansion of profits from cost reduction for reasons unrelated to the contractor's efficiency. Even with the known problems and opposition, the Defense Department feels that this contract type holds considerable promise for future use since it contains a considerable incentive for industry to cut costs, and realizes increased profits if it can be properly employed.

Other incentives for contractors to do a better job have been used in contracts. An incentive provision has been used in contracts for increasing the fee or profit to the extent that the end item surpasses its performance goals or is delivered earlier than specified. A decreased fee can also be provided if the item does not meet the desired goals or is delivered late. Another profit motivation is the inclusion of a value engineering provision in contracts. This encourages a contractor to devote time and effort to value engineering studies to reduce costs under the contract. In return for this effort the contractor normally receives and increased profit by sharing the cost savings with the Government.

An important law, which has been a continuing phase of procurement policy for many years, is the Renegotiation Act of 1951. This law proposes to eliminate excessive profits from most contracts made with the United States Government for the national defense program. The system operates through a Renegotiation Board which is charged to automatically evaluate profit on defense contracts on a company-wide basis. While it appears that the formulas and methods used in determining excess profits are generally unknown except to the Board, there have been many findings in which industry has repaid large sums. In 1959, renegotiation refunds amounted approximately $821 million.

The process is actually an after the fact adjustment and has on many occasions come under criticism by industry. Currently, industry desires that incentive type contracts be exempt from renegotiation. It appears to be inconsistent to encourage increased profits by the use of incentive contracts with savings through effective cost and technical performance, and then to take away the profit during renegotiation. The Renegotiation Board does not feel this happens, but it is extremely difficult to distinguish between the case of an honest cost estimate subsequently improved upon in performance by efficiency, good management or good luck, and the case of a dishonest cost estimate. Both produce higher profits. The Government many times just takes back all profit which exceeds a good low percentage.

Concern has been indicated both by the Secretary of Defense and industry over the renegotiation of incentive type contracts, but Congress again passed the Renegotiation Act in 1962, with no modification. This is going to make it difficult to encourage industry freely to accept the incentive type contract and the profit motive concept if their fruits of labor are taken away from them in renegotiation.

The profit motive and cost reduction philosophy in defense procurement contracting.--A major area of concern today to both the Defense Department and industry is profit motives in selling to defense and cost reductions in the goods and services procured. This is an extensive problem that cuts into the center of industry and defense interrelationships, and methods of operation. This area has been under a joint study since 1961, and acknowledges the industry desire for a reasonable profit, and defense desire for overall cost reductions and economy in its procurement programs. It also involves the continual problem of Governmental control versus free enterprise concepts.

The Defense viewpoint was stated by the Secretary of Defense in 1961, when the first major step was taken and the Defense Department asked the National Security Industrial Association to sponsor a joint symposium on profit motives and cost reduction. At that time Mr. McNamara stated:

> I consider that reduction of costs in our procurement programs is one of my primary responsibilities as Secretary of Defense. I have emphasized this fact to my staff and to the Military Departments and I am confident that increased emphasis will result from their efforts.
>
> However, we in defense cannot do this job alone. It has been established that industry spends 50% of our procurement dollars through subcontracting and purchasing programs. I know that a fully effective cost reduction program can only be achieved with the personal support and active participation of the top management officials of the companies that spend these dollars.[11]
>
> I have great faith in the efficiency of the profit motive. I believe we have not yet allowed enough scope for it in our procurement policies. I am prepared to give full scope for it in our procurement policies. I am prepared to give full support to appropriate profit ratios for truly effective and efficient performance by contractors.[12]

---

[11] Robert S. McNamara, The Profit Motive and Cost Reduction, Letter dated 13 March 1961 from Robert S. McNamara, Secretary of Defense, to Mr. E. V. Huggins, President, National Security Industrial Association, Joint Industry-Defense Department Symposium (Washington, D.C.: June, 1961), p. 1.

[12] Ibid., Address delivered at the National Security Industrial Association Joint Industry-Defense Department Symposium (Washington, D.C.: June, 1961), p. 7.

These statements of the Secretary of Defense have set the pattern of joint action which has continued for the past two years. During this time the Secretary of Defense has continually stressed the importance of industry's profit motive and its relation to cost reduction in defense procurement. It is generally believed that procurement costs can be reduced by taking advantage of effective competition between industries, and that the use of contracting and procurement policies and incentives will facilitate this result. However, it is a difficult concept to make workable in light of the continual Congressional, General Accounting Office, and public pressures, and a lack of actual competition in some procurement or the inability to let competition work.

In past years the Government was able to rely on the profit motive as a direct incentive to cost reduction through the medium of the fixed price contract, but this has changed as the dollar value of fixed-price contracts have declined in past years from a high of 87% of our total procurement funds in fiscal year 1951, to less than 59% in fiscal year 1960. Conversely, over the same period the value of contracts awarded under various cost-reimbursement provisions rose from 13% of the total procurement funds to 41%. Our technology is becoming increasingly more complex; our plans and specifications are more and more subject to change without notice, as we merge development, production and deployment under the new principle of concurrency. Therefore, the use of cost reimbursement contracts will probably continue to involve a considerable portion of the total procurement. A slight reversal may appear in the next few years with current Defense Department emphasis being placed on fixed price contracts, but this will be difficult and slow.

It appears that other steps must be taken which center around a recognition of cost and benefits. The specifications and performance standards must be viewed to obtain an optimum relationship between requirements and the cost

of achieving them. Improving the cost benefit ratio is important for the Department of Defense because it helps to hold down the defense budget and shortens production lead-time; it is important for the contractor because it increases his profit ratio. It is important to the economy because it permits us to compete, on reasonable terms, with industry in other parts of the world. This is the same theme developed in the "Defense Programming System" where the Secretary of Defense uses the term "cost-effectiveness" in referring to competing weapons systems of the military services. The Secretary makes many of his major decisions on basically economic considerations.

The Secretary of Defense has presented seven ways in which defense can improve the cost-benefit ratios:

1. Simplify specifications and rationalize tolerances and performance standards. Defense must not be fixed and immutable, but must maintain a range of acceptable alternatives to be examined in relation to corresponding costs.

2. Work to reduce development times. Eliminate the open-end work statement, which invites exploration of endless technical alternatives postponing program decisions to the indefinite future.

3. Obtain more reliable cost estimates--extremely important for the proper cost analysis of a project.

4. Control engineering changes after an item has gone into production.

5. Work to simplify defense procurement, and the procedures used down through all the tiers of the subcontracting structure.

6. Streamline the reporting requirements imposed by the Defense Department.

7. Eliminate uneconomic and inefficient conditions, (whether imposed by management or by labor) which interfere with maximum productivity. Many of these are local defense practices against economic dislocation of the worker. Technology is rapid and government, labor, and industry share an obligation to ease the economic and social impact of these changes. The Department of Defense has established a special unit to assist local communities and local industries which are adversely affected by the closing of bases or other installations.[13]

---

[13] _Ibid_., pp. 4-7.

This is an indication of the many things being attempted to improve defense procurement in the immediate future. Naturally some of them are far from being successfully accomplished and some will never really be solved.

The Defense Department is quite certain that the sum total of costs for the things it buys is too great. If industry reduces its costs together with the help of defense then industry will receive greater profits.

> Profit is the excess of income realized over costs incurred, before taxes, so that maximum profits result from maximum sales at higher prices, accompanied by the more efficient control of costs.[14]

The problem thus stated indicates that costs must be tackled and controlled by industry and defense in order that profits may become greater.

Where the Defense Department talks about profit and costs and the use of fixed-price or incentives in contracts to reduce costs, industry talks about price. Both generally agree that the fixed-price contract should be used whenever possible in gaining maximum competition, but they also know that today and for the future the cost-reimbursement contract will continue to increase in use.

Various defense industries have over the years continually stated that they are not making the profits on Government contracts that they should or that they make on non-defense business. In these statements industry usually refers to profit on net sales, which has been reported as low as 1.5%. This is admittedly a low rate of return. Dun and Bradstreet manufacturer's ratios reported earnings on net sales in 1960 as 1.7% for airplanes, 3.6% for chemicals, and 3.8% for electricals. The ratios reflected sales to Government and commercial markets and tend to support the statements.[15]

---

[14] Major General William T. Thurman, Use of Profit Motive in Present Defense Procurement Practices, Address delivered at the National Security Industrial Association Joint Industry-Defense Department Symposium (Washington, D.C.: June, 1961), pp. 29-32.

[15] Dun and Bradstreet, Inc., 14 Important Ratios in 72 Lines of Business-Comparative Ratios for the Years 1956-1960, (New York: Dun and Bradstreet, Inc., 1962), pp. 12-17.

The Chairman of the Renegotiation Board commented in 1960, on a study they had conducted of certain companies required to refund excessive profits. He indicated that while profits on sales tended to decline on various contract types as risks thereunder declined, this situation actually reversed itself when return on net worth was considered. Table 6 indicates profits as a percent of net sales as presented in the study. These are percentage ratios which existed prior to the Board's actions to force repayments of excessive profits. Ratios that existed following refunds were not indicated. Aircraft and missile industries are heavily supported, by approximately 67% with Government equipment and facilities. In addition, these industries primarily utilize the incentive contracts of relatively less risk which indicate low profits on net sales. However, they actually realize profits on net worth amounting to 71.3%, while contractors using their own facilities and under predominantly (95%) fixed-price and price redetermination contracts, realized only 42.6% of the total net worth allocated to renegotiable production.

In summary, as stated by the Renegotiation Board:

> From our unique vantage point, . . . under any form of contract in current use a contractor may realize greater profits than were originally contemplated.[16]

While profits have not been high for many defense industries, in fact not high for any due to the actions of the Renegotiation Board, there is still sufficient profits in the defense market to interest most industries which have needed products and services to sell. In order to realize these profits, however, it is becoming more important for industry to increase its operating efficiency.

The defense emphasis on cost reductions is not concurred in by some members of industry's management. They believe that defense should consider

---

[16] Senate Subcommittee on Procurement, Committee on Armed Services, loc. cit., Part II, pp. 117-128.

TABLE 6

RELATIONSHIP OF PROFITS TO NET SALES BY CONTRACT TYPES[a]

CONTRACT TYPES	PROFITS PERCENT OF NET SALES
Fixed Price	18.3
Price Redetermination	10.6
Fixed Price Incentive	8.8
Cost Plus Fixed Fee and Cost Plus Incentive Fee	4.9

---

[a] Source: U.S. Congress, Senate, Procurement Subcommittee of the Committee on Armed Services, Hearings, A Study of Military Procurement Policies and Practices as Required by Section 4(a) of Public Law 86-89 (Amending the Renegotiation Act of 1951), 86th Cong., 2nd Sess., 1960, Part 2, p. 118.

only the price they pay and let industry run its own business. The military services analyze costs during negotiation, review them during make-or-buy decisions and have the benefit of hindsight in reviewing costs and performance on redeterminable contracts, often after these are nearly complete. The emphasis on costs in renegotiation reviews and after the fact concern for costs rather than price in General Accounting Office audits converts the thinking of more and more individuals in both industry and Government to a cost orientation. Industry feels more emphasis should be placed on determining a fair reasonable price for results. In pure cost orientation as costs decrease, profits tend to also decrease which eliminates the incentive needed in industry. The emphasis should also be on price and value received, not on cost and cost analysis alone.[17]

When truly effective competition exists it is easier to establish a price, but when determining a value to be placed on an item produced for national defense, with limited or no competition in some cases, pricing is difficult at best. Cost analysis is with us at least for the near future as it is the only current effective method of determining a price to be paid for the value received.

Our democratic way of life is founded on the profit motive and free enterprise system. This must be recognized and fostered in every way possible, as is currently being attempted by defense management. The use of fear, and appeal to pride and patriotism are limited in their effect on industry and the individual manager. Each has its impact on management but the profit motive, appealing to man's desire to survive and to acquire, intelligently handled, is the only true approach in our society.

---

[17] P.E. Haggerty, Potential Value of Profit Motive in Reducing Cost in R and D and Other Procurement, Address delivered at the National Service Industrial Association Joint Industry-Defense Department Symposium (Washington, D.C.: June, 1961), pp. 41-52.

A continuing and permanent price reduction can only be achieved if there is a cost reduction which flows from human ingenuity or increased human productivity, and combinations of both. The use of fear, inspirational leadership, appeals to pride and patriotism, in appropriate cases can have an effect; but basically the appeal to the pocketbook gets the most for the least.

Patriotism is often felt by military managers to be a strong motivation. There is a feeling that something is wrong when industry speaks out for profits. Military management recognizes the need for ingenuity, initiative, and productivity, since these are useful in our management of men, but profit is not recognized in its true light since the military do not know how to utilize it, and therefore use only its results in the form of reduced costs, efficiency, and economy. This lack of a profit philosophy is a grave omission on the part of military management. Recognizing the importance of the profit motive and how to use it is of major importance to our effectiveness in a procurement job.

A business cannot succeed without profits. It is believed that some higher profits are required to adequately off-set possible losses from other contracts, or a business will fail. The Defense Department procurement policy cannot maximize the advantages for itself in all situations. This is an easy tendency when power and control lies in the hands of the Defense Department buyer. Over control by defense and a continued trend toward failure to recognize the free enterprise profit motives of industry will develop a new industry defense relationship. In an example of the type of action being taken by contracting officers there is a noticeable indication that they do not understand or want to allow the profit motive to work. This example is furnished by the Aircraft Armaments, Inc., and is presented as taken from an Air Force fixed-price contract won by competition under formal advertising:

> It is requested that you review the actual costs experienced in connection with your contract . . . for the manufacture, furnishing, and installation of . . .; and, if your margin of profit is greater on this contract than on your other Government contracts, it is requested that the Government be granted a voluntary reduction in connection with the price of this contract. Your answer no later than . . . as to your findings will be appreciated.

The reply of the company President to this letter was as follows:

> It is not this company's policy to volunteer reduction in price on fixed-price contracts. Clear statements by Secretary McNamara and Mr. Morris and others in the Department of Defense have indicated that they believe that the use of fixed-price contract is the best way to apply the reward/penalty incentive to assure maximum effort by a contractor. If profits are not to be retained by an efficient producer this policy becomes completely ineffective . . . We have never had any offer by any Government agency to raise a fixed-price to compensate for a loss which we have experienced. . . We are firmly convinced that the program being established by the Defense Department in the direction of greater incentives for contractors to produce at low costs is highly desirable. . . We are taking all the steps which we consider necessary and desirable to assure the high quality of the equipment at the time it is required. We cannot, therefore, offer to modify the terms of the fixed-price contract in a manner which will reduce our incentive to do a good job.[18]

There is another side to this problem, however, but must also be viewed. If we allow industry to make profits and retain them, then it follows that we will allow them to make losses and may be even go out of business if they cannot compete competively. This phase of the reward/penalty philosophy has not always worked nor will it be able to operate effectively in all situations. Certain industries have been able to gain relief and obtain large Government grants. The reasons given for this normally are that the industries are necessary to our national defense program, and we cannot allow them to go under. This action is normally accomplished through the Contract Adjustment Board and is closely controlled. Still this appears to add a new view to the relationships of industry and defense.

---

[18] Robert B. Chapman, III, "Compatibility of Recent Legislation and Regulations with Cost Reduction and Incentives," Paper prepared for Aircraft Armaments, Inc., September 20, 1961, pp. 1-11.

Industry and defense have both stated a preference for firm fixed-price contracts, but often this has turned out to be just lip service and the cost-reimbursement contract continues to increase in dollar use. In both cost-reimbursement contracts and sole-source negotiated fixed-price type contracts, defense will continue to want cost information and to establish systems and controls to obtain this information from industry and insure its validity. The installation of "PERT Time/Cost System" is illustrative of an effort to obtain greater control as well as are many recent provisions of the Armed Services Procurement Regulations. It was recently concluded by Mr. R. B. Chapman, III, Executive Vice President of Aircraft Armaments, Inc., that the Department of Defense favors in principle only the application of the profit incentive to achieve cost reduction. Even Revision 8 to ASPR, which promulgated this principle, contained a clear warning to the contracting officer to be wary of the contractor's attempt to maximize the difference between estimated and actual cost. The revision only stated a philosophy and did not place the concept into effect. Other provisions of ASPR have, throughout the years, been utilized to accomplish socio-economic ends through defense procurement procedures, controls which limit the allowability of specific elements of cost, and limit profits. These modifications have tended either to increase costs or be neutral, but have not worked to increase profits.[19]

The results of a study conducted by the National Security Industrial Association containing recommended proposals that it feels will accomplish the aims of defense and industry have now been forwarded to the Defense Department. The Defense Department also studied the same problems, and many changes are expected in our way of conducting future business with industry. This is the

---

[19] Ibid.

type of joint undertaking which can greatly benefit the country in its defense effort. The following are areas in which special emphasis is being placed:

1. The amount of supervision exercised by defense over phases of performance of contracts and sub-contracts has been excessive in the past and is growing. A reduction in unnecessary control can save money for both industry and defense.

2. Responsible Government officials do not believe sufficient motivation or incentives exist within normal business operations of defense industries to bring about efficient and economical results.

3. Whenever possible, incentive contracts (fixed-price type) should be used in place of cost reimbursement (cost-plus-fixed fee types).

4. A greater centralization of procurement control in the Department of Defense. This does not mean central procurement of everything, but better control of policy determinations, supervision, and general control on the Department of Defense level.

5. Elimination of the many separate regulations of the Navy, Air Force and Army, and their subordinates, in procurement policy matters, and their reliance on the Armed Services Procurement Regulations.[20]

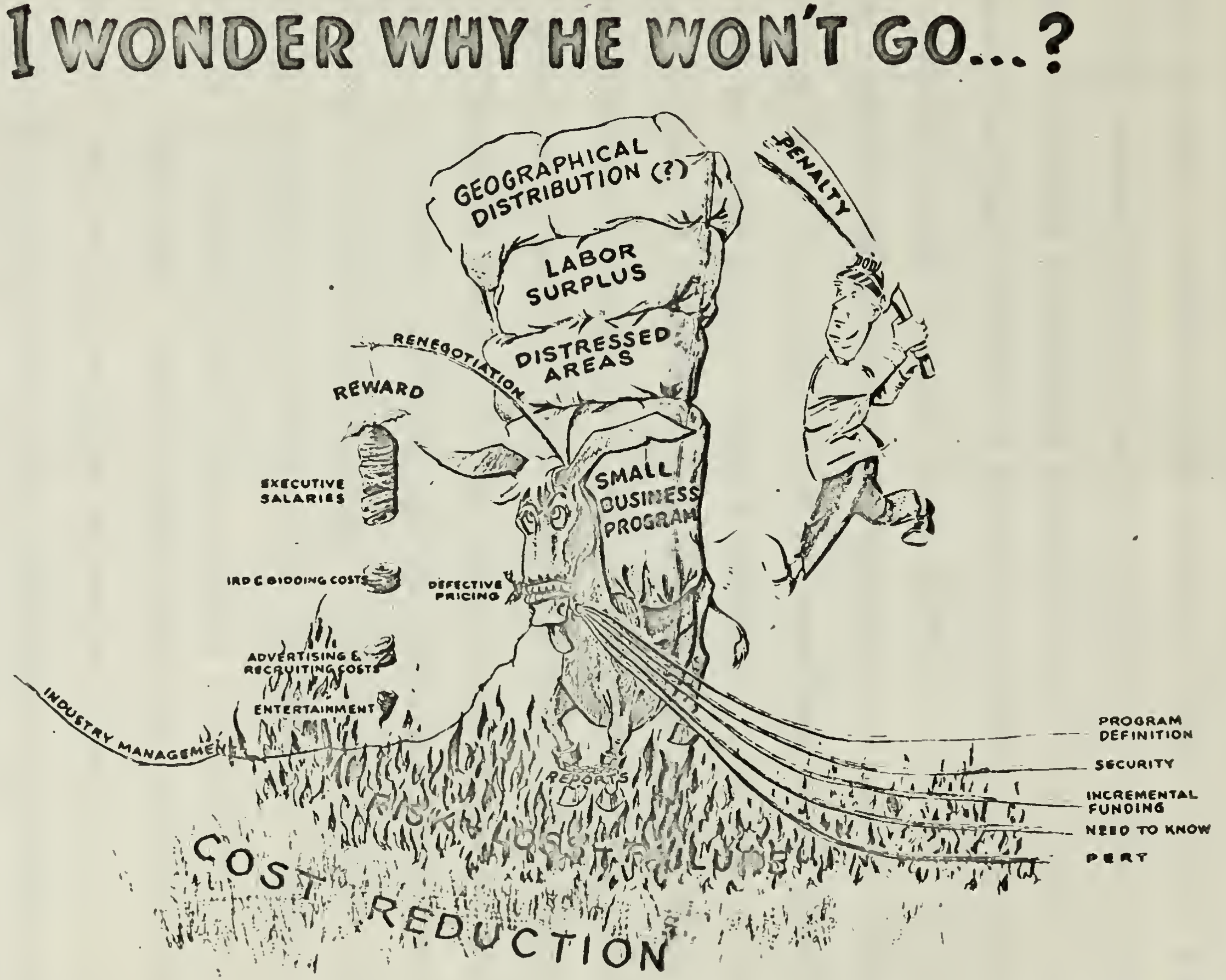
In an illustration Figure 1, developed by the National Security Industrial association, they have pointed out particularly well why they feel the old beast (defense industry) won't go.

Basic underlying flaws in the philosophy of procurement and contracting as seen by industry and defense.--It is concluded that the underlying flaws in the philosophy of procurement and contracting are such that a solution in the near future will not occur. The conflicting philosophies cannot be brought together and resolved by any means currently available to either management. It is believed that the ultimate solutions to defense marketing relationships will lie in the future through maximum application of the tools of management sciences. This will be developed more fully in the next chapter. However, at this point an attempt will be made to summarize the major flaws in the procurement process.

---

[20] National Security Industrial Association, Report of Cost Reduction Study, A report prepared by the National Security Industrial Association Washington, D.C.: June 15, 1962, pp. 3-4.

FIGURE 1



Source: National Security Industrial Association (Washington, D.C., November 1962).

First, a conflict appears to exist in what Congress, defense, and industry see as effective use of the profit motive in industry for cost reduction. All parties agree in principle to the concept, but the implementation conflict is great. While the profit motive has helped to build a great country with a high standard of living and productivity this has not been 100% the reason. It has also been equally recognized, even by the most responsible businesses that some governmental control must usually be brought into the picture at certain points, and this always starts an argument. The use of profit motives alone are not sufficient for operation of our way of free life. Normally we expect competition to act in maintaining stable reasonable prices. This does not always occur in defense marketing. If an item is harmful, such as some medicine, we restrict it by government regulations. Public utilities are controlled for the public interest. This applies to defense marketing also. Here there exists a peculiar type of customer which tends to require protection. He is not buying for himself, but for national defense and the public. He therefore needs certain protection and advantages that may not be required in industry sales to non-defense customers. It is right and proper that certain legislation has grown up to develop a code of ethics and a method of doing business by both industry and defense managers in procurement matters and in the use of public funds. Usually industry has taken exception to this action by Congress, and the implementation regulations by defense, but this is also as much a part of our way of life as the profit motive and industry must learn to live with it. Mr. E. H. Ulig of the Martin Company recently indicated that his Company receives 99.9% of its income from the Government.[21]

---

[21] E. H. Ulig, Vice President Finance (Comptroller), The Martin Company, A speech presented to the Navy Financial Management Class, George Washington University, February 5, 1963.

Martin has become a partner in the ultimate goal--the defense of our country. They must be responsive to the best interests of the public.

The age old problem of how much unhampered free enterprise will exist or how much Government control there will be continues to be a problem that only the public and Congress will ultimately answer. Government operation of all business enterprise is still far from the picture, and does not really appear to be a serious consideration at this time.

Secondly, there is a definite feeling both in the Defense Department and industry that the contractor is assuming the role of a partner to the military. It may even be a trust or fiduciary concept. There is a continual plea for closer cooperation and coordination between industry and defense. This is natural since not only is industry spending a large portion of the defense dollars in sub-contracts for defense, but it is vital to the success of any weapons system. Industry has the same public trust that defense has assumed. Industry must visualize itself in this position and maintain the highest standards in the management of funds entrusted to it by the grantor, the Government, for the benefit of his beneficiary, the public. Defense industry must learn to accept this just as the military officer and civilian employee of the Government must accept their responsibilities.

The Air Force made the following statement in a publication released in 1961.

> Industry is a partner of the Air Force in achieving the objectives of any systems program. Along with all the Air Force participants, the effort of industry must be properly phased in the System package program. To achieve this objective, all parts of industry's effort must be controlled by the Air Force. Such control includes the technical, test, production, tooling, subcontracting and financial aspects. The System Program Office provides this control and includes all the functional elements necessary to permit performing this control. While there obviously will be many contacts between the various members of the SPO, in particular, the Program

> Director and the specific segments of industry concerned with the program, precise direction of the contractors must be reflected in the terms of the contract(s) which applies to the program. . . Inasmuch as the contracts provide the vehicle for Air Force management control over industry, it is essential that these documents incorporate requirements for management information flow to the Air Force, and set forth relationships between the Air Force, the prime contractor, his subcontractors and associate contractors.[22]

This is the direction we appear to be moving and if the public and Congress do not desire this approach then it is time that high level policy be developed to guide the defense establishment and industry toward the desired national goals.

Thirdly, there is not a full recognition that we are operating under a completely different set of circumstances than we were ten to twenty years ago. Since the close of the second world war we have been in a new era, one completely different from anything experienced before. There has been no war except for the "Korean" limited engagement, and yet a high level of military procurement has been sustained to keep the country prepared against constant threat posed by the Communists. In this period we have seen the greatest scientific and technical advance in military weapons the world has ever seen. We are in the midst of a scientific revolution whose impact promises to be far more disturbing to the <u>status quo</u> than was the fabled industrial revolution of the 19th century. Simply stated, our procurement practices are of the model "T" engine era, when they should be nuclear powered. This lack of recognition also rests with industry, which has failed to recognize that it will no longer produce thousands of aircraft, but only single missiles and increasing research and development work with the possibility of no production.

Fourthly, is the continued recognition that the Executive and Legislative

---

[22] Robert E. Beach, "Military Procurement in the Scientific Revolution," Paper presented to the National Security Industrial Association Advisory Committee, June 3, 1961, pp. 15-16.

> [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Branches of the Government will continue to use the expenditure of public funds as part of the social, economic, and political policies of the country. The Defense Department must continue to look for ways to reduce the large budgets which continue to grow each year. The problems to be faced by President Kennedy and the Congress this year, with its large budget deficit and reduction of income taxes, is bound to be reflected in what happens to the defense budget. The continued growth of awarding defense contracts for social, economic, and political purposes and in furnishing relief to contractors who have failed tend to increase costs and reduce the quality of the products and services received.

It has been suggested that these areas and others should be the subject of an extensive Congressional, Defense Department and industrial study. This is the approach that is being taken now. The writer has maximum faith that the most reasonable solution consistent with our democratic way of life will be reached. In the next chapter these problems will be integrated into the ultimate solution which will only result as both defense and industry accept the new scientific tools of management.

CHAPTER V

LONG RANGE TRENDS IN DEFENSE MARKETING

Previous chapters have covered current problems in defense marketing and some immediate short range programs of defense and industry which are being developed and implemented in an effort to improve the existing situations. It is the contention of this writer that many of the problems of today are being only partially solved or not at all by the use of many of the current management decisions being made. In all truth the so called current cures for the problems have in cases turned out to be as bad as the ills they propose to correct. The Defense Department has reacted to its procurement problems by the issuance of many new regulations and statements of policy, but the problems still exist. The many tentacled squid and the multifaced pentagon have the same defense mechanism --each expels quantities of black ink to throw off its pursuer. The major problems in defense industry of product strategy and its associated parts intelligence, product planning, market planning, etc., defense procurement, and the reduction of costs through profit motive programs of the Defense Department have not been resolved, and will continue to be with us.

It is only through extensive use of the management sciences and their advancing technologies in the years ahead that an alert management in industry and defense working together will actually arrive at ultimate solutions. These tools are appearing at high levels in management and must now become tools of lower management levels. The extensive use of scientific operations research and other quantitative mathematical techniques in shaping the defense programs of the nation by Mr. McNamara is a step forward in the efficient utilization of resources available to the defense effort. These methods must be utilized

in defense industry to eliminate inefficiency in many efforts which are costing the Government extra dollars. Market research can and should strengthen basic engineering and planning organizations and shape the pulse of new conceptual development work, whether the problem of the moment involves the United States defense economy, a competitor's planning, or foreign technology.

Centralized procurement control.--The recent establishment of the Defense Supply Agency has been highly beneficial in bringing the channels of procurement together in one agency. It is believed that this agency will eventually exercise centralized management control over procurement for the defense establishment in all major procurement areas. Currently procurement actions take place in each echelon of military departments, from headquarters commands down to base commands. Each service maintains large procurement staffs together with volumes or regulations to deal with the industrial producers. This problem can and must be reduced. In the future, the Defense Supply Agency will probably control inventory management of all services by utilizing a computer in a vast communication system. This will allow the Defense Supply Agency to make procurement decisions affecting the economy which will be tremendous in scope. This centralization will greatly reduce costs for both industry and the defense establishment.

However, with increased organizational size and centralized control, comes power in the hands of a few. Former President Eisenhower, in his farewell speech on January 17, 1961, said:

> In the councils of Government we must guard against the acquisition of unwarrented influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes.[1]

Some citizens are even more alarmed and have used much stronger words in

---

[1] Fletcher Knebel and Charles W. Bailey II, "Military Control: Can It Happen Here?" Look (September 11, 1962), p. 18.

expressing their resentment toward the coalition that has been developed. They see a rising unchecked military power in which the Congress constantly defers to the military as the only source of supreme knowledge in the infinitely complicated world of modern arms. The military fosters a state of perpetual fear--a continuous stampede of patriotic fervor--with the cry of a grave national emergency. The Berlin blockade and now Cuba were incited by the military. The military and industry try to perpetuate the warfare state image, keeping the country on a war economy, keeping the public mood truculent to justify the need for militarism.[2]

It was recently reported by the House Armed Services Subcommittee that of the nation's 100 leading defense contractors, 1,499 retired officers were employed, of which 261 were Generals and Admirals.[3]

Congress appears to also be a little alarmed by the tendency for centralization in the Defense Department. Therefore, while the defense managers may try to effect a greater union, understanding, and feeling of mutual cooperation between defense and industry, there is a growing feeling of apprehension concerning the possibility of too much military control in the hands of a few. The military manager and the civilian Defense Department manager will play an important part in the ultimate solution to this problem.

<u>The Defense Department programming system</u>.--The biggest single change which has occured in defense marketing in the last few years is now taking place through changes in the 1963 military budget by the establishment of the Department of Defense Programming System. This system involves planning, programming, and budgeting in one interrelated package. It is an integrated programming,

---

[2] Fred J. Cook, <u>The Warfare State</u> (New York: The Macmillan Company, 1962), pp. 1-365.

[3] Knebel and Baily, <u>loc. cit</u>.

financial management system for the Secretary of Defense. It is not just the total dollars that are now being spent nor the specific weapons systems included in the budget, but the fundamental change in the entire planning-programming-budgeting cycle. The new system will mean a basically different way of making the key choices among alternate weapons systems more than ever before the basic building blocks of the military budget.[4]

The system forges a link between planning and budgeting which did not previously exist. Planning was accomplished by the Joint Chiefs of Staff, and budgeting fell under the confines of the comptroller. Military plans were often prepared without regard for available funds. The services did their planning on a unilateral basis, and to a large extent weapon systems, and order of priority of forces and activities was decided by the military departments and not by the Department of Defense.

The one year budget cycle did not relate the full time phased cost of proposed programs. Each year the Secretary of Defense had to make decisions on forces and programs with inadequate information, and within the few weeks allocated to budget review.

The following are a few of the goals of the system which indicate its vast nature and scope:

1. Planning can now be oriented around major missions rather than services. The aim is to ignore services as independent organizations and to recognize their interdependence and the possibility for trade-offs between competing methods of accomplishing the same or similar missions. This will aid in the development of a well-balanced U.S. Defense program, not just a well-balanced Army, Navy, or Air Force program.

2. The ability to relate resources inputs to military outputs. The ability to relate both financial and nonfinancial estimates of the resource inputs required over time in order to obtain a specified

---

[4] Murray Smith, "Department of Defense Programming System," Data Magazine, Vol. 7, No. 3 (March 1962), p. 31.

time-phased military output. Forces and programs and their costs had to be projected over a period of years so that future costs as well as the present costs implications could be determined. The currently established period for program and costs is a five-year cycle and eight years for the military force structure. Costs are broken down into resource categories of research and development, initial investment and annual operating.

3. Coordination of long-range planning with budgeting. Budgets and funding decisions must be compatible with long-range programming decisions. Budgets are still required for the short-range budgeting period, but they should normally be compatible with currently approved programs.

4. Continuous appraisal of programs. Defense planning should go on continuously, and not just on a short time span basis. The programming system should go on continuously and facilitate changes when required. Budgeting and funding, however, will continue on an annual basis.

5. Progress Reporting. Control of approved programs will be accomplished by timely progress reporting through the extensive use of computers.

6. Ability to make cost-effectiveness studies of alternate force structures. The costing technique must be accurate enough to provide a basis for competing programs, yet at the same time responsible enough to allow frequent studies of many alternatives without imposing repeated, burdensome workloads on Department of Defense personnel.

7. Integration of Department of Defense information systems. This system inposes heavy requirements for information on the services. Similar reporting systems existing today should be revised to avoid duplication and cost. This will allow the programming system to play a major role in the development of an integrated Office of the Secretary of Defense financial management system.

The programming system uses a structure which is designed to provide information for decisions making on the basis of entities known as "program elements"--a combination of men, equipment, and installations whose effectiveness can be related to national security objectives. Significant groupings of elements are established within programs of which there are nine: strategic retaliatory forces, continental air and missile defense forces, general purpose forces, airlift and sealift forces, reserve and national guard forces, research

and development, general support, civil defense, and military assistance program.[5]

The underlying philosophy for this system was first expressed by Mr. Charles J. Hitch in the co-authored book entitled "The Economics of Defense in the Nuclear Age." In this book he stated that strategies are ways of using budgets or resources to achieve military objectives. He concludes, therefore, that military decisions should be made only after economic analysis of various alternatives.[6]

Defense Department spokesmen for the programming system have not indicated directly the relationship of the system with procurement and industry requirements for market planning. In a speech made to the National Security Industrial Association in June 1962, Mr. Hitch stated that the five-year program is designed for internal management at this time and not for industry use. The Department of Defense will utilize other means of keeping industry informed of plans and programs such as the Defense Industrial Council.[7]

There are numerous areas in the system, however, which would indicate that the system will be tied in closer with defense industry. Also the background of the system's prime author, Mr. Charles J. Hitch, would tend to indicate differently. Mr. Hitch brings with him to defense, from the Rand Corporation, a background of vast experience and associations. He is quite aware of the

---

[5] Department of Defense, Assistant Secretary of Defense Controller, Study Report on the Programming System for the Office of the Secretary of Defense, (Washington, D.C.: June 25, 1962), pp. 1-2.

[6] Charles J. Hitch and Roland N. McKean, The Economics of Defense in the Nuclear Age (Cambridge, Mass.: Harvard University Press, 1960), pp. 1-19.

[7] Charles J. Hitch, "Remarks of the Assistant Secretary of Defense at the Fifth Annual Spring Meeting of the National Security Industrial Association Maintenance Advisory Committee, Williamsburg, Va.," June, 1962.

economic impact of defense spending and some of its undesirable consequences as well as some of its desirable benefits. In his book Mr. Hitch developed a way of looking at military problems which regards all military problems as, in one of their aspects, economic problems in the efficient allocation and use of resources. This way of looking at military problems goes far toward reconciling the views of officers, civilian officials responsible for defense, and Congressmen and officials who are primarily interested in economy. Being truly economical does not mean scrimping--reducing expenditures no matter how important the things to be bought, nor does it mean implementing some stated doctrine regardless of cost. The armed forces have a problem of combining limited quantities of missiles, crew, bases, facilities to produce maximum deterrence of enemy attack which is the same problem in industry of combining limited quantities of coke, iron ore, scrap, blast furnaces, and mill facilities to produce steel in such a way as to maximize profits. In both there is an objective, there are budgetary and other resource constraints, and there is a challenge to economize.

Strategy, technology, and economy are not three independent considerations to be assigned appropriate weights, but interdependent elements of the same problem. Strategies are ways of using budgets or resources to achieve military objectives. Technology defines the possible strategies. The economic problem is to choose that strategy, including equipment and everything else necessary to implement it, which is most efficient (maximizes the attainment of the objective with the given resources) or economical (minimizes the cost of achieving the given objective)--the strategy which is most efficient also being the most economical.

National security is one big economic problem. The nation has certain resources--land, labor, and capital. These resources can be used to satisfy many objectives of the nation and its individual citizens--national security,

a high standard of living, social security, rapid economic growth, and so on. There are competing objectives and the more resources are devoted to national security, the less there are for something else. From the economic viewpoint national security depends on three things:

1. Quantity of national resources available now and in the future.
2. The proportion of these resources allocated to national security purposes.
3. The efficiency with which these resources so allocated are used.[8]

While the programming system tends to be confined presently to the efficiency with which these resources so allocated to defense are used, it is evident that Mr. Hitch is more interested in the broader position of defense and the economic problems indicated by items (1) and (2) above.

In the long-range goals indicated for the programming system it is envisioned that a computer maintained data file for cost estimating will be developed from which special cost studies can be performed. The file will contain such elements as: performance factors, and procurement, construction, or manpower cost data, and the effect of production volume on unit costs. This file will be built from accounting and logistics systems within the services, and from various contractor reports such as the Defense Contractors Planning Report, and Costs Incurred on Contract.[9]

Industry has disliked the yo-yo like instability of major program decisions, particularly those relating to funding. One year there is a feast in a project the next year it's a famine. A complete stability of program decisions is neither desired nor desirable. Our dynamic technology would make such a goal

---

[8] Hitch and McKean, loc. cit., pp. 1-84.

[9] Department of Defense, Assistant Secretary of Defense Controller, loc. cit., p. IV-3.

impossible anyway. But there can be greater stability and endurance to program funding decisions than at present if the initial continuing program planning is made more thorough. The program concept must become one of the key tools of the Defense Department in planning, initiating and funding adequately each successive annual increment of effort required to achieve program objectives. Industry must be made a more active participant in the preparation of the programming.[10]

The failure to meet plans for acquiring major resources is the most common source of deviation from approved programs. For this reason, a phase of the comprehensive Defense Department Programming System is being devised for planning and controlling the acquisition of resources from the research and development through the procurement stages. The system includes specification of information needed for planning, a resource acquisition plan, technical and economic feasability, and its funding plans. The system spells out a phase which while included in the programming system is actually now a part of the PERT Cost System.[11]

Planning data must also provide a basis for controlling approved programs. Schedules and milestones must be established in sufficient detail that frequent soundings are made of progress. In this way, a significant deviation will be reported at an early date. A financial plan to identify cost overruns or underruns if necessary. This will require specification of unit costs, patterns of contractor effort over the production cycle, quarterly schedules for incurring obligations, and compatibility with resource category (procurement,

---

[10] National Security Industrial Association, <u>Report of Cost Reduction Study</u>, Report for the Secretary of Defense, Prepared by the National Security Industrial Association, (Washington, D.C.: June 15, 1962), p. 45.

[11] Department of Defense, Assistant Secretary of Defense Controller, <u>loc. cit</u>., p. IV-5.

construction, and research and development appropriation funds) reported by the services through the reporting system. Acquisition control has now started with 200 important research and development projects and material items.

Another very strong indication of the tie-in of the programming system with the problems of defense industry is reflected in an article written by members of the Rand Corporation in 1960. In connection with this article it should be remembered that Mr. C. J. Hitch worked for the Rand Corporation for many years as an economist, before joining the Defense Department staff as the Comptroller.[12]

In this article the authors stressed the opinion that with certain modifications the budget could become a valuable document in business planning and will help toward a more vigorous partnership between business and Government, in making the most of the defense dollar, and our national resources. It would appear that the Rand Corporation has been actively interested in a system which could improve the military planning and budget system and at the same time improve the relationship and position of industry in obtaining information on defense planning and utilization of the available resources.

How does this specifically relate to the defense marketing problem? First of all, the nature of the market research job needs to undergo, and will be undergoing some fundamental changes. Even though Congress will continue to be appropriating for procurement, personnel, construction, and other categories of expenditures, the basic policy decisions may be made on the basis of individual weapons systems. Mr. Hitch and the Rand approach is a combination of the techniques of economic analysis, market research, systems and cost analysis, and customer requirements investigations, all reflecting important elements of

---

[12] David Novick and G. H. Fisher, "The Federal Budget as a Business Indicator," Harvard Business Review, (May, June, 1960), p. 64.

marketing. Effective military marketing and research by industry will increasingly have to be broadened or deepened to encompass these related techniques.

Department of Defense emphasis is on total cost of a system, i.e., research and development, procurement, and operating, and not just on procurement alone. The job of marketing will have to be orientated to the operating as well as the production aspects of a weapons system. The customer is now looking at the cost of a total life span of a system, and as has been discovered, the total operating cost often exceeds the procurement costs. The marketing man is forced to know more about his weapon system than he did previously, and he must draw on comparisons of his system and all of the other competing systems of other services.

The programming system delineates the major markets available, and as noted in Table 7, the bulk of funds are devoted to the combat forces under "general purpose forces". These forces are used for limited or theater wars, rather than for ICBM's, long-range bombers, and other strategic retaliatory forces (general war capability). It is also noted that a major fraction of the budget is devoted to the activities which support the combat forces, i.e., research and development, training and reserves. Areas which remain unchanged by the budget system at this time are the procurement and funding by individual services for their approved program elements, but a shift could occur in the future to a Department of Defense level. The programming concept, however, as previously mentioned will change the size of the budget given to each service, depending on how well its programs contribute to national defense aims.

Congress will still appropriate funds based on the system of appropriation structures and while Congress has not shown enthusiastic acceptance of the programming system neither have they reflected any disapproval. It is quite

TABLE 7

ANALYSIS OF THE MILITARY BUDGET BY PROGRAM METHOD[a]
($ Billions)

PROGRAMS	PLANNED OBLIGATIONS FY 1962		FY 1963		SERVICE DISTRIBUTION PERCENTAGE FY 1963			
	AMOUNT	%	AMOUNT	%	ARMY	NAVY	AIR FORCE	OSD
Strategic Retaliatory Forces (Air Force Missile Programs, ICBM's, Aircraft, Navy polaris and submarines)	9.5	19	9.4	17		22	78	
Continental Air and Missile Defense Forces (Primarily Air Force but all services contribute-interceptors, NIKE, BOMARC missiles and warning systems)	2.2	4	2.1	4	18	7	75	
General Purpose Forces (Limited tactical war-Navy carriers, cruisers, Army infantry, armored, Marine infantry, FMF)	18.2	35	18.4	34	36	48	16	
Sealift and Airlift Forces (MATS, troop carrier wings, MSTS)	1.1	2	1.3	2		4	96	
Reserve and National Guard	1.8	4	1.9	4	55	19	26	
Research and Development (Programs not approved for procurement-Typhon, Pershing, Light Obs. Helicopter, Red Eye)	4.7	9	5.7	11	24	21	48	7
General Support	12.1	23	12.9	24	24	25	40	11
Civilian Defense	.3	1	.7	1				100
Military Assistance	1.6	3	1.5	3				
TOTAL	$51.5	100%	$53.9	100%				

---

[a]Source: Murray Smith, "Department of Defense Programming System" Data Magazine, Vol. 7, No. 3 (March [illegible]), p. 32.

likely that the current appropriation system will continue, but Congress will also have available this "new look" concept. Congress will still appropriate funds and determine the total size, together with the President, but this new system will allow the allocation of defense funds among competing programs on a cost-effectiveness basis.[13]

The Defense Department has for many years provided leadership in the development of program control techniques. Industry, together with defense, is now rapidly adopting these techniques, expanding their use, and critically appraising their advantages and disadvantages. Future progress in this relatively new field of program management technology requires that line-of-balance, program milestones, program evaluation and review technique and critical path become familiar tools of management, and not merely the property of the program control techniques.

Program Evaluation and Review Technique.--This system was instituted to aid managers in planning and controlling the three variables of large complex weapon systems and space development programs--time, cost, and technical performance. Of specific interest in the defense procurement processes is the PERT Cost System. This system is designed to serve not only higher level management requirements of the Government, but also the internal project planning and control requirements of contractors. The objective is to provide the information that will enable better planning and control of costs.

PERT/Cost must be developed concurrently and consistently with other aspects of management information systems, such as government-industrial reporting, programming, internal operating procedures, and cost estimating techniques.

Complex research and development projects can be managed effectively if

---

[13] Smith, loc. cit., pp. 32-33.

project managers have the means to plan and control the schedules and costs of work required to achieve their technical performance objectives. The serious schedule slippages and cost overruns which have been experienced on many weapon and space programs indicate that managers at all levels need improved techniques at all stages in a project to:

1. Define work to be performed.
2. Develop more realistic schedules and cost estimates based on the resources planned to perform the work.
3. Determine where resources should be applied to best achieve the time, cost, and technical performance objectives.
4. Identify areas developing potential delays or cost overruns, in time to permit corrective action.

A special supplement for developing and evaluating alternate time and cost plans for each project is available. It assists the manager in selecting the plan that represents the best feasible balance of time, cost and technical risk in achieving the project objective. Another supplement is a procedure for allocation of resources among project tasks to assure that the project is completed at the lowest cost within the desired completion date.[14]

It recently became apparent to the Defense Department that a multiplicity of such procedures are emerging which, if allowed to continue, will place a costly and confusing administrative burden on the defense industry contractors and detract from the most efficient use of these important new management control techniques. In collaboration between the Defense Department, and the National Aeronautics and Space Administration a common basic guide to the future application of PERT-Type Systems has been developed. The PERT Cost System has brought criticism from some defense industry managers that it caused additional

---

[14] Office of the Secretary of Defense and National Aeronautics and Space Administration, DOD and NASA Guide PERT Cost System Design (Washington, D.C.: June, 1962), pp. 1-145.

unwarranted control in their internal operations. It has also been indicated that the PERT Cost System was not really required, and that their current cost and control systems were adequate.[15]

This type of complaint appears to be leveled at many defense systems which are designed to furnish defense management with detailed data on the operations of industry and especially cost data.

In the procurement of complicated weapons systems and massive electronic systems, where predominately negotiated cost reimbursement type contracts are used and even in fixed type contracts, it is necessary to have accurate information on the actual or estimated costs involved in the performance of the contract. In many cases this information has not been adequately or accurately furnished the Defense Department in the past. When pertinent data known to the contractor is not known to the Government the contractor obviously has an advantage in negotiations. This is aggravated even more when the forces of full and free competition are not present.

The General Accounting Office, in after the fact audit, has reported to Congress on many occasions the excessive prices paid by the Government because of a lack of cost information.[16]

Since this system plays such an important part in establishing and controlling costs in various major procurement projects and reaches out into the internal accounting operations of industry, the extended use of this system indicates a tremendous impact on the future of defense marketing.

---

[15] E. H. Uhlig, Vice President Finance, The Martin Company, Presentation to the Navy Financial Management Course, February 5, 1963.

[16] U.S. Congress, Senate, Procurement Subcommittee of the Committee on Armed Services, Hearings, A Study of the Military Procurement Policies and Practices as Required by Section 4(a) of Public Law 86-89 (Amending the Renegotiation Act of 1951), 86 Cong., 1960, Part 2, pp. 150-153.

Line of Balance Technique.--Current military emphasis on procurement of advanced weapon systems within the shortest possible time spans has required this improved management technique. Under the weapon systems concept, management has an increasing responsibility for external as well as internal coordination to meet target delivery dates and financial limits. Line of Balance is a methodical system for measuring, selecting, interpreting, and presenting essential facts in the engineering and manufacturing stages of an end item. In short, Line of Balance can be used to advantage in any operation where time and accomplishments are factors to be measured and evaluated.

This system is utilized in two phases, the first for engineering design to be followed by prototype construction. This entails the layout against a background in time and essential steps to be taken in the engineering phases of an end item. The second phase is preliminary to follow-on production, including the manufacturing analysis, a breakdown of the production process into its principle elements, from receipt of the raw materials in the plant to completion of the end product, all measured against the background of time. Line of Balance is an exception reporting system reporting only deviations from the plan. This allows top management to examine the sensitive or controlling elements and then make quick decisions based on facts furnished from the line of balance flow chart.

The basic tool of the system is the line of flow chart which contains four principal elements:

1. The program plan, which sets forth the controlling tasks to be accomplished, the man hours required, the sequence of developments and the interrelationships between tasks--all measured against time.

2. The planned objective, which represents the goal as well as the performance to be met in terms of dollar expenditures for labor and material for selected key points, measured against time, as shown under the program plan.

3. The program progress, as reflected by bar graphs corresponding to the numbered sensors in the program plan.
4. The program schedule or line of balance, which compares actual accomplishment with those which previously were forecast, thus serving to pinpoint problem areas.

This defense industry management tool is an important system to develop actual project progress. This system goes a level lower in the process than PERT to the control of the manufacturing production processes for each end item. Information from this system is then quite valuable for developing the PERT cost information. While the system was developed by the Navy Department for its internal management it has proven to be invaluable for industry use. This system is different from PERT in that it is designed for industry internal management use to control production processes and does not operate to furnish the Defense Department information through a direct automatic reporting system. PERT has proved more valuable in the unknown areas of research and development work and missile development.[17]

Integrated data flow systems.--Improving data interchange or data flow between industry and the consumer has been a continuous process. The use of high speed computers are doing much to solve this problem today. The Air Force has been active in developing a system called Data Interchange Procedures which is a unique method of communicating between the military services and the numerous contractors manufacturing and supplying the military establishment with weapons, equipment and spare parts. This is a standardized method of data flow among defense procurement and inventory management agencies and the industrial complex.

The methods employed today by the military in communicating with industry are varied. Even under the uniform Department of Defense framework the

---

[17] George Mundorff and William Bloom, "Industrial Programming Needs Improving", Armed Forces Management, (Washington, D.C.: January, 1958), pp. 26-28.

policies are interpreted and implemented to the degree where little or no compatibility is realized in the procedural areas of terminology, documentation, formats, and operational instructions.

Industry often must design their internal plant operation and management systems to satisfy the military method of doing business. This requires many ways of operating one for each military service. Table 8 indicates the multiple methods now in use. The circles represent various man-machine conversions conducted to convert data from contractor internal systems to information useable by military services. Table 9 illustrates a standard way of communicating with industry by all services with man-machine conversion operations minimized.[18]

This system points up the tremendous efforts currently being accomplished in integrated data systems of industry and defense.

Automatic data processing.--Underlying most of the long-range scientific programs of management which have been discussed up to this point has been the use of automatic data processing equipment. This more than any other one factor has made these new systems possible. The programming system and PERT system require a considerable collection and analysis of data and as the systems grow so will the data requirements. Automatic data processing equipment offers the only feasible way of handling these masses of data.

The current stages of computer technology is quickly passing. Using machines to replace the requirements for personnel, and to gain speed in data handling is only the beginning, the real benefits from use of computers will only come when highly developed integrated data systems are employed. John Diebold has stated:

> It is a way of thinking as much as it is a way of doing . . . It is no longer necessary to think in terms of individual machines, or even in terms

---

[18] Carlton J. Martin, "Improved Data Interchange: What It's All About," Armed Forces Management, September, 1962, p. 45.

TABLE 8

CURRENT INDUSTRY-DEFENSE ESTABLISHMENT DATA INTERCHANGE SYSTEM

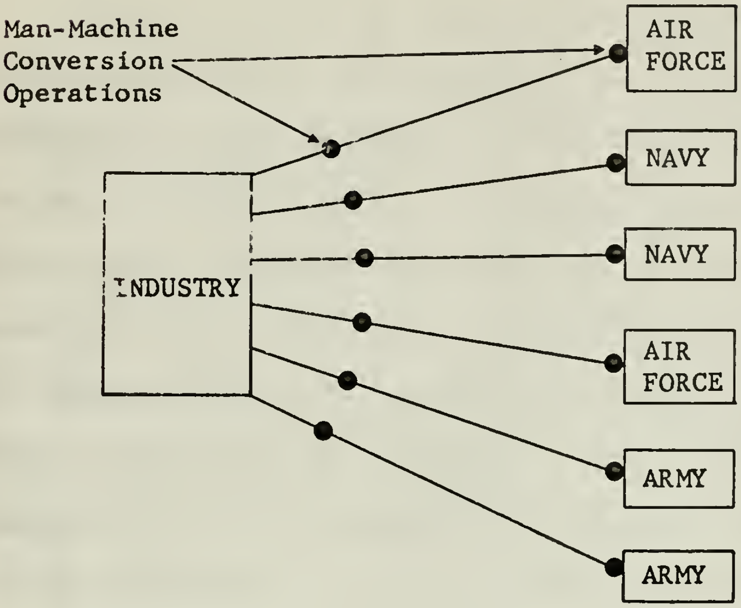
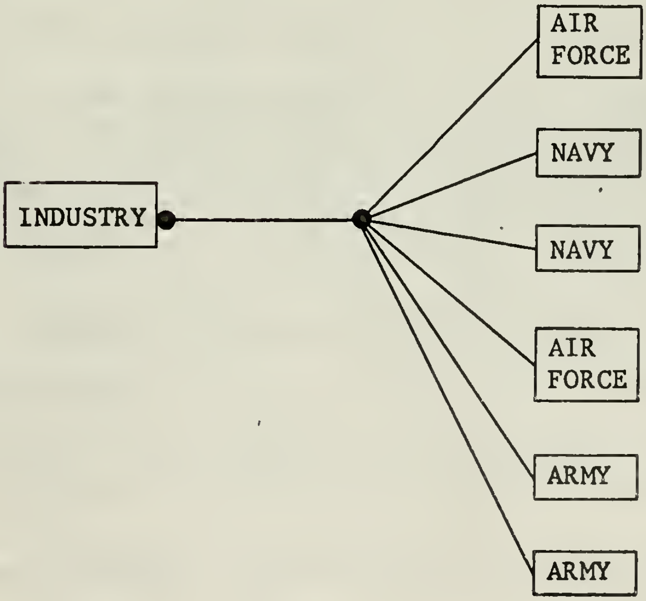


TABLE 9

PROPOSED INDUSTRY-DEFENSE ESTABLISHMENT DATA INTERCHANGE SYSTEM



> of groups of machines; instead, for the first time, it is practical to look at an entire production or information-handling process as an integrated system and not as a series of individual steps.[19]

Dr. Norbert Wiener has projected the computer technology even further with such statements that computers show originality and unpredictability. Computers are being developed to program themselves. They are beginning to operate the way man appears to operate when he is exploring ways of solving a novel problem. They can apply, and then modify, as appropriate, previous experience with and methods of solution for what appear to be related problems. Dr. Frank Rosenblatt has designed the "Perception", a machine the behavior of which is not completely controllable or predictable. This machine can learn to recognize what it has seen before and to teach itself generalizations about what it recognizes. It can also discriminate, thereby identifying shapes similar to those it has seen before. Future versions will hear as well as see.

It is not fantasy to envision machines which will eventually do a job of original thinking, certainly as good thinking as that expected of most middle-level people who are supposed to "use their minds".

In the words of the National Association of Manufacturers:

> For the expanding, dynamic economy of America, the sky is indeed the limit. Now more than ever we must have confidence in America's capacity to grow. Guided by electronics, powered by atomic energy, geared to the smooth, effortless workings of automation, the magic carpet of our free economy heads for distant and undreamed horizons. Just going along for the ride will be the biggest thrill on earth.[20]

Integrated Defense Department Planning-Programming-Budgeting-Procurement System.--Currently, there is a vast amount of advance thinking concerning the possibility of a new marketing science through computer technology. Dr. Herbert

---

[19] John Diebold, "Automation: Its Impact on Business and Labor", National Planning Pamphlet No. 106 (Washington, D.C.: May, 1959), p. 3.

[20] Calling All Jobs, National Association of Manufacturers (New York: October, 1957, p. 21. quoted in: Donald N. Michael, Cybernation: The Silent Conquest, A Report to the Center for the Study of Democratic Institutions, March, 1962,pp. 1-10.

> [illegible]

[illegible]

[illegible]

[illegible]

> [illegible]

[illegible]

---

[19] [illegible]

[20] [illegible]

W. Robinson, President and Chairman, C-E-I-R, Inc., recently stated:

> It is quite reasonable to suppose that a permanently up-dated sample of the entire consuming public of the United States could be maintained, in great detail, in a large computer or computers, and up-dated continuously as new samples were made regularly, so that at any moment analysis could be confidently made on the basis of "living" information.
> It should be possible to make projections with economic models--feeding in masses of data--of future demand for different products by different geographical areas, and how consumers in those areas would spend their incomes.[21]

The objectives of computer use will be to maximize the profit of the total operation. The variables being advertising media selection and sales, production, transportation, storage, inventory control, site location and other factors bearing on the reduction of the costs of distribution and the increased efficiency of methods of marketing.

A total program determining plant production, distribution patterns, geographical area, market areas and intelligence, national and regional is required. The system will require infinite details concerning the markets. Naturally this system will require vast amounts of data and entail a vast implementation and operation cost, but with the race of mankind toward computer mechanization it is just beyond the horizon.

This is an indication of the direction in which industry is headed. How does this fit into what the Defense Department will be doing? Quite obviously defense industries will be using these systems in their non-defense markets and will want to employ the same techniques in defense markets. It is doubtful that the Defense Department would ever allow industry access to an integrated system that would reach inside the defense establishment. However, it is quite possible, in fact probable, that defense computer systems will be installed to have access and control over any defense industry integrated marketing system. The Defense

---

[21] Herbert W. Robinson, Toward A New Science of Marketing, Paper presented to the New York Chapter of the American Marketing Association, (Washington, D.C.: May 22, 1962), p. 11.

Department is continually reaching out into industry with greater accounting controls and information requirements. The PERT Cost System and Integrated Data Flow Systems are examples of current systems in operation.

Data processing properly employed can bring about a totally integrated defense marketing approach. The computers ability to handle massive data, files streamline communication channels, and accomplish management decision making functions through employment of operations research techniques will lead to an Integrated Defense Department Planning-Programming-Budgeting-Procurement System. The problems of industry in market intelligence, product planning, distribution, etc., would all be resolved and integrated elements of the system. The current Defense Department Planning-Programming-Budgeting System is the first link in the requirements for long-range planning of the defense market. This system relates plans, programs and budgets or resource availability for programs. A phase of this program is under development to control obligations and actual expenditures and perform costing. PERT Cost is an operating system within industry for production control, and costing. The integration of these independent systems is the next step in the cycle for a total system. The actual requirements of when to buy are generated in each military department. In highly specialized missile, and electronic areas of procurement this will continue to be accomplished by individual initiative and judgement of management personnel, but not in the easier structured areas of procurement such as common military equipment of clothing, fuels, arms, ammunition consumption items, etc., where automatic reorder can take place through employment of computers. It would now appear that a centrally controlled integrated Defense Department system will eventually be employed. The Defense Supply Agency or similar organization will serve as the focal point in the centralized integrated system.

The visualization of this new marketing system for defense becomes more clear when the management sciences techniques of operations research and mathematical analysis is considered. These systems, while quite evident in many current individual problems of planning, programming, budgeting, logistics, personnel utilization and war gaming, etc., at higher levels of defense management have not appeared at the lower military department levels, with the exception of the Air Force where they have found extensive utilization. This will develop as increased emphasis is placed on these tools by the Secretary of Defense and Assistant Secretaries. The ultimate in employment of these tools, however, is going to cause a shift of management planning and performance upward. This has already shown itself in the Defense Department, with implementation of the programming system. Middle and lower management under mechanized systems more and more becomes only suppliers of data inputs, and the work becomes highly structured by programs of operating rules to cover the method of inputs.

It is probably not possible to indicate the many forms and implications which will follow from the use of these new systems and management sciences now available. The basic facts, however, are quite evident that we are entering a new age of management. What has been indicated up to this point should indicate to the reader the general form which defense marketing will be taking if not the specific form. These current systems and tools, however, do set the scene for what is an inevitable evolution in the scientific era of our current environment.

CHAPTER VI

MILITARY MANAGEMENT RESPONSIBILITIES AND CONCLUSIONS

It is important that personnel in defense, especially in responsible positions involving decision making action affecting defense marketing functions, understand the philosophy of the private business marketing effort. The ability of private industry to aid in the interests of national defense is important to our nation's survival. Optimum use of resources can only be achieved by industry and defense working as a team. It is a requirement today for the defense manager not only to understand how defense marketing functions but to be able to weigh the tremendous impact of his own procurement policies and actions on the vast sector of the American economy affected.

The effective utilization of current day management tools by defense managers will be a top priority requirement for the future, in order for them to stay abreast of the growing problems of defense marketing. Actually, the defense managers have not only been holding their own but have been leading the way for industry in many other areas. Today defense leads in the utilization of data processing equipment, operations research, games, linear programming, and such management systems as the defense programming system, and the program evaluation and review technique system. Industry must join with defense in the most effective management of the scientific, technical, and other resources available to us for getting the job accomplished. It also means we must constantly work to improve all our tools of management technology.

The defense market is truly classed as a buyer's market in which the consumer holds the reins of control. This control is certainly necessary for efficient operation and performance of the defense mission. The Department of

Defense should and probably will continue to centralize control of procurement policy and management in the Defense Supply Agency. In addition, current trends of studies being conducted indicate that through the use of programming, "PERT", operations research, and data processing equipment with improved data communications systems, defense is going to greatly improve its ability to determine current and future requirements for goods and services. This will lead to more complete centralization of control and power in the Department of Defense, thus increasing its importance as a focal point for defense industry.

With increased control in the Defense Department in the hands of a few managers will also go a definitely increased responsibility for their actions and the possible total effect on the economy. This impact must be closely watched for efficient and effective management by senior management in the Department of Defense and Congress. It is especially important that defense managers know and understand well the economic actions which exist in the defense market. Defense industry is motivated by more than profits. It is generally accepted that profits are greater in the consumer or industrial market. It is only by understanding the effect of our actions that we can exert responsible action in the defense market. Irresponsibility will certainly lead to more congressional controls. Additional congressional controls lead to greater control over industry. This is not wanted by industry nor by defense management. Increased controls normally mean increased prices for everyone.

In conclusion, the military managers will find that they have a greater responsibility to know and really understand the nature, scope, problems, and solutions in the defense marketing function than any other phase of the private business economy. In military assignments in research and development, procurement, and even in budgeting the military officer finds that he is directly involved as a participant and key figure in the defense marketing effort. Other

phases of management, while extremely important to defense internal operations, do not have the close contact and interrelationship with the private economy that marketing has and will continue to develop in the future.

The statement, "men, money, and materials are the defense resources", should be expressed, "men, money, and defense marketing are the defense resources".

BIBLIOGRAPHY

Books

Beckman, Theodore N., and Davidson, William R. Marketing. New York: Ronald Press Co., 1962.

Converse, Paul D., Huegy, Harvey W., and Mitchell, Robert V. Elements of Marketing. Englewood Cliffs, N.J.

Cook, Fred J. The Warfare State. New York: The Macmillan Company, 1962.

Davis, Kenneth R. Marketing Management. New York: Ronald Press Co., 1961.

Hitch, Charles J., and McKean, Roland N. The Economics of Defense in the Nuclear Age. Cambridge, Mass.: Harvard University Press, 1960.

Heidingsfield, Myron S., and Blankenship, Albert B. Marketing. 1st ed. revised. New York: Barnes and Noble, Inc., 1957.

Lazo, Hector, and Corbin, Arnold. Management in Marketing. New York: McGraw-Hill Book Co., Inc., 1961.

Lemke, B. C., and Edwards, James Don (eds.). Administrative Control and Executive Action. Columbus, Ohio: Charles E. Merrill Books, Inc., 1961.

McGarry, E. D. Theory in Marketing. "Some Functions of Marketing Reconsidered". ed. Reavis Cox and Wroe Alderson. Chicago: Richard D. Irwin Inc., 1950.

Revzan, David A. Wholesaling in Market Organization. New York: John Wiley and Sons, Inc., 1961.

Seelye, Alfred L. (ed.) Marketing in Transition. New York: Harper and Brothers, 1958.

Stockman, Lynn H. Advancing Market Efficiency. Edited for American Marketing Association. New York: American Marketing Association, 1959.

Articles and Periodicals

American Marketing Association. Reprints from Publications of the American Marketing Association on the Subject of Defense Marketing. Chicago, Ill.: American Marketing Association, 1962.

Data Magazine. The Magazine of Defense Marketing. Washington D.C.: Data Publications, Inc., 1961-1962.

Knebel, Fletcher, and Baily II, Charles, W. "Military Control: Can It Happen Here?" Look. September 11, 1962, pp. 17-21.

Martin, Carlton J. "Improving Data Interchange: What It's All About." Armed Forces Management. September,1962.

Mundorff, George, and Bloom, William. "Industrial Programming Needs Improving." Armed Forces Management. Washington, D.C.: January, 1958.

Murphy, Charles J. V. "Education of a Defense Secretary," Fortune. Chicago, Ill., May, 1962, pp. 102 ff.

Navy Times. March 9, 1963.

Novick, David, and Fischer, G. H. "The Federal Budget as a Business Indicator." Harvard Business Review. May, June, 1960.

The Washington Post. March 6, 1963.

Thomas, Pat. "An Introduction to Defense Marketing," Data Publications. A Compilation of Articles from Data Magazine's Defense Marketing Forum. Washington, D.C., December, 1961.

Weidenbaum, Murray L. "The Scope of the Military Market," Journal of Marketing. Washington, D.C.: American Marketing Association, October, 1959, pp. 17-20.

Reports

American Management Association, Inc. Defense Marketing in the 1960's. Report Number 57. Edited by the Marketing Division, American Management Association, Inc. New York: American Management Association, 1961.

Diebold, John. "Automation: Its Impact on Business and Labor." National Planning Pamphlet No. 106. Washington, D.C.: May, 1959.

Dun and Bradstreet, Inc. 14 Important Ratios in 72 Lines of Business--Comparative Ratios for the Years 1956-1960. New York: Dun and Bradstreet Inc., 1962.

Michael, Donald N. Cybernation: The Silent Conquest. A Report to the Center for the Study of Democratic Institutions. March, 1962.

National Security Industrial Association. The Profit Motive and Cost Reduction. Addresses delivered at the National Security Industrial Association Joint Industry Defense Department Symposium. Washington, D.C., June, 1961.

National Security Industrial Association. Report of Cost Reduction Study. A Report prepared by the National Security Industrial Association, Washington, D.C. June 15, 1962.

Robinson, Herbert W. Toward A New Science of Marketing. Paper presented to the New York Chapter of the American Marketing Association. Washington, D.C.: May 22, 1962.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Public Documents

Bureau of the Budget. Budget of United States Government, Fiscal Year 1963. Washington, D.C.: U.S. Government Printing Office, 1962.

Department of Defense. Study Report on the Programming System for the Office of the Secretary of Defense. Washington, D.C., June 25, 1962.

Department of Defense. Armed Services Procurement Regulations (ASPR). Washington, D.C.: U.S. Government Printing Office, 1960.

Department of Defense. The Changing Pattern of Defense Procurement. Washington, D.C.: U.S. Government Printing Office, June 19, 1962.

U.S. Congress, Senate, Procurement Subcommittee of the Committee on Armed Services. Hearings, A Study of Military Procurement Policies and Practices as Required by Section 4(a) of Public Law 86-89 (Amending the Renegotiation Act of 1951). 86th Congress, 2nd Session, 1960, Part 1 and 2.

U.S. Congress, Senate, Committee on Armed Services. Hearings on HR 5532, Amending the Armed Services Procurement Act, 87th Congress, 2nd Session, 19 July and 2 August 1962.

Unpublished Material

Beach, Robert E. "Military Procurement in the Scientific Revolution." Paper presented to the National Security Industrial Association Advisory Committee, June 3, 1961.

Chapman, Robert B., III. "Compatibility of Recent Legislation and Regulations with Cost Reduction and Incentives." Paper prepared for Aircraft Armaments, Inc., September 20, 1962.

Department of the Navy, Procurement Division, Office of Navy Material. "Logistics Management Institute," April 1962.

Hitch, Charles J. "Remarks of the Assistant Secretary of Defense at the Fifth Annual Spring Meeting of the National Security Industrial Association, Maintenance Advisory Committee, Williamsburg, Va.," June, 1962.

Lyle, J. M., Rear Admiral. "Defense Supply Agency--Today and Tomorrow." Presentation to the National Security Industrial Association, Washington, D.C., September 27, 1962.

Speeches Before the Navy Financial Management Class 1962-1963

Beardsley, George F., Vice Admiral, Chief of Naval Material, U.S. Navy Department, Washington, D.C., December 17, 1962.

Uhlig, E. H., Vice President Finance (Comptroller), The Martin Company, Baltimore, Md., February 5, 1963.

Other Sources

Department of Defense. Personal interview with Mr. Robert D. Lyons, Head Directorate for Procurement Management, Office of the Assistant Secretary Installations and Logistics, February 22, 1963.

Department of the Navy. Personal interview with D. G. Aitken, Commander, U.S.N. Head Armed Services Procurement Regulations Group and Navy Policy Member ASPR Committee, Office of Navy Material, February 15, 1963.

National Security Industrial Association. Personal interview with Mr. George Youngblood, Committee Executive, Procurement Advisory Committee, Washington, D.C, November 24, 1962.